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TITLE 7—AGRICULTURE

Chapter IX—Agricultural Marketing Service (Marketing Agreements and Orders), Department of Agriculture

[Plum Order 10]

PART 936—FRESH BARTLETT PEARS, PLUMS, AND ELBERTA PEACHES GROWN IN CALIFORNIA

REGULATION BY GRADES AND SIZES

§ 936.534 *Plum Order 10*—(a) *Findings.* (1) Pursuant to the marketing agreement, as amended, and Order No. 36, as amended (7 CFR Part 936), regulating the handling of fresh Bartlett pears, plums, and Elberta peaches grown in the State of California, effective under the applicable provisions of the Agricultural Marketing Agreement Act of 1937, as amended, and upon the basis of the recommendations of the Plum Commodity Committee, established under the aforesaid amended marketing agreement and order, and upon other available information, it is hereby found that the limitation of shipments of plums of the variety hereinafter set forth, and in the manner herein provided, will tend to effectuate the declared policy of the act.

(2) It is hereby further found that it is impracticable and contrary to the public interest to give preliminary notice, engage in public rule-making procedure, and postpone the effective date of this section until 30 days after publication thereof in the FEDERAL REGISTER (60 Stat. 237; 5 U. S. C. 1001 et seq.) in that, as hereinafter set forth, the time intervening between the date when information upon which this section is based became available and the time when this section must become effective in order to effectuate the declared policy of the act is insufficient; a reasonable time is permitted, under the circumstances, for preparation for such effective time; and good cause exists for making the provisions hereof effective not later than June 27, 1956. A reasonable determination as to the supply of, and the demand for, such plums must await the development of the crop thereof, and adequate information thereon was not available to the Plum Commodity Committee until June 19, 1956; recommendation as to the need for, and the extent of, regulation of shipments of such plums was made at the meeting of said committee on June 19, 1956; after consideration of all available information relative to the supply and demand conditions for such plums, at which time the recommendation and supporting information was submitted to the Department; shipments of the current crop of such plums are expected to begin on or about July 1, 1956; this section should be applicable to all such shipments in order to effectuate the declared policy of the act; and compliance with the provisions of this section will not require of handlers any preparation therefor which cannot be completed by the effective time hereof.

(b) *Order.* (1) During the period beginning at 12:01 a. m., P. s. t., June 27, 1956, and ending at 12:01 a. m., P. s. t., November 1, 1956, no shipper shall ship from any shipping point during any day any package or container of Gaviota plums unless such plums grade at least U. S. No. 1 and, except to the extent otherwise permitted under this paragraph,

(i) If the plums are packed in a standard basket they are of a size not smaller than a size that will pack a 4 x 4 standard pack;

(ii) If the plums are packed in a special plum box, they are of a size not smaller than a size that will pack a 6-row standard pack;

(iii) If the plums are packed in any container other than a standard basket or special plum box, ninety (90) percent, by count, of the plums measure $1\frac{12}{16}$ inches in diameter and of the remainder of the plums none measures less than $1\frac{9}{16}$ inches in diameter: *Provided*, That, no lot of plums shall be considered as failing to meet this requirement if one package of such plums contains not more than one (1) percent, by count, of plums that are smaller than $1\frac{9}{16}$ inches in diameter; and

(iv) The diameters of the smallest and largest plums in the package or container do not vary more than one-fourth inch: *Provided*, That a total of not more than five (5) percent, by count, of the plums in the package or container may fail to meet this requirement.

(2) During each day of the aforesaid period, any shipper may ship from any shipping point a quantity of such plums, by number of packages or containers, which are of a size smaller than the size prescribed in subparagraph (1) of this paragraph if said quantity does not exceed one hundred (100) percent of the number of the same type of packages or

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FEDERAL REGISTER

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(As of January 1, 1956)

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Title 6 ($1.75)

Title 7: Parts 210–899 (Rev., 1955) with Supplement ($4.50)

Title 26 (1954) Parts 1–220 (Rev., 1955) ($2.00)

Titles 47 and 48 ($2.25)

Previously announced: Title 3, 1955 Supp. ($2.00); Titles 4 and 5 ($1.00); Title 7: Parts 1–209 ($1.25), Parts 900–959 (Rev., 1955) ($6.00), Part 960 to end (Rev., 1955) with Supplement ($5.85); Title 8 ($0.50); Title 9 ($0.70); Titles 10–13 ($0.70); Title 14: Parts 1–399 ($2.50), Part 400 to end ($1.00); Title 15 ($1.00); Title 16 ($1.25); Title 17 ($0.60); Title 18 ($0.50); Title 19 ($0.50); Title 20 ($1.00); Title 21 (Rev., 1955) ($5.50); Titles 22 and 23 ($1.00); Title 24 ($0.75); Title 25 ($0.50); Title 26: Parts 1–79 ($0.35), Parts 80–169 ($0.50), Parts 170–182 ($0.30), Parts 183–299 ($0.35), Part 300 to end, Ch. I, and Title 27 ($1.00); Titles 28 and 29 ($1.25); Titles 30 and 31 ($1.25); Title 32: Parts 1–399 ($0.60), Parts 400–699 ($0.65), Parts 700–799 ($0.35), Parts 800–1099 ($0.40), Part 1100 to end ($0.35); Title 32A (Rev., 1955) ($1.25); Title 33 ($1.50); Titles 35–37 ($1.00); Title 39 (Rev., 1955) ($4.25); Titles 40–42 ($0.65); Title 43 ($0.50); Title 46: Parts 1–145 ($0.60), Part 146 to end ($1.25); Title 49: Parts 1–70 ($0.60), Parts 71–90 ($1.00), Parts 91–164 ($0.50), Part 165 to end ($0.65)

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containers of plums shipped by such shipper which meet the size requirement of said subparagraph (1) of this paragraph and all such smaller plums meet the applicable one of following requirements:

(i) If the plums are packed in a standard basket, they are of a size not smaller than a size that will pack a 4 x 5 standard pack;

(ii) If the plums are packed in a special plum box, they are of a size not smaller than a size that will pack a 7-row standard pack;

(iii) If the plums are packed in any container other than a standard basket or special plum box, ninety (90) percent, by count, of the plums measure $1\frac{10}{16}$ inches in diameter and of the remainder of the plums none measures less than $1\frac{7}{16}$ inches in diameter: *Provided*, That, no lot of plums shall be considered as failing to meet this requirement if one package of such plums contains not more than one (1) percent, by count, of plums that are smaller than $1\frac{7}{16}$ inches in diameter; and

(iv) The diameters of the smallest and largest plums in the package or container do not vary more than one-fourth inch: *Provided*, That, a total of not more than five (5) percent, by count, of the plums in the package or container may fail to meet this requirement.

(3) If any shipper, during any day of the aforesaid period, ships from any shipping point less than the maximum allowable quantity of such plums that may be of a size smaller than the size prescribed in subparagraph (1) of this paragraph, the quantity of such undershipment may be shipped by such shipper only from such shipping point during the next 2 succeeding calendar days but only after shipment has been made of any other quantities of such smaller-sized plums such shipper is authorized to ship on those 2 succeeding calendar days.

(4) As used in this section, "U. S. No. 1," "fairly uniform in size," "diameter," and "standard pack" shall have the same meaning as set forth in the revised United States Standards for plums and prunes (fresh) (§§ 51.1520 to 51.1530 of this title); "standard basket" shall mean the standard basket set forth in paragraph 1 of section 828.1 of the Agricultural Code of California; "special plum box" shall mean the special plum box set forth in section 828.15 of the Agricultural Code of California; "6-row standard pack" shall mean that the top layer of the pack contains 39 plums which are fairly uniform in size and the plums in the top layer are not superior in size to those in the remainder of the pack; "7-row standard pack" shall mean that the top layer of the pack contains 52 plums which are fairly uniform in size and the plums in the top layer are not superior in size to those in the remainder of the pack; and, except as otherwise specified, all other terms shall have the same meaning as when used in the amended marketing agreement and order.

(5) Section 936.143 sets forth the requirements with respect to the inspection and certification of shipments of fruit covered by this regulation. Such section also prescribes the conditions which must be met if any shipment is to be made without prior inspection and certification. Notwithstanding that shipments may be made without inspection and certification, each shipper shall comply with all grade and size regulations applicable to the respective shipment.

(Sec. 5, 49 Stat. 753, as amended; 7 U. S. C. 608c)

Dated: June 21, 1956.

[SEAL] S. R. SMITH,
Director, Fruit and Vegetable Division, Agricultural Marketing Service.

[F. R. Doc. 56-5029; Filed, June 25, 1956; 8:50 a. m.]

[Plum Order 11]

PART 936—FRESH BARTLETT PEARS, PLUMS, AND ELBERTA PEACHES GROWN IN CALIFORNIA

REGULATION BY GRADES AND SIZES

§ 936.535 *Plum Order 11*—(a) *Findings*. (1) Pursuant to the marketing agreement, as amended, and Order No. 36, as amended (7 CFR Part 936), regulating the handling of fresh Bartlett pears, plums, and Elberta peaches grown in the State of California, effective under the applicable provisions of the Agricultural Marketing Agreement Act of 1937, as amended, and upon the basis of the recommendations of the Plum Commodity Committee, established under the aforesaid amended marketing agreement and order, and upon other available information, it is hereby found that the limitation of shipments of plums of the variety hereinafter set forth, and in the manner herein provided, will tend to effectuate the declared policy of the act.

(2) It is hereby further found that it is impracticable and contrary to the public interest to give preliminary notice, engage in public rule-making procedure, and postpone the effective date of this section until 30 days after publication thereof in the FEDERAL REGISTER (60 Stat. 237; 5 U. S. C. 1001 et seq.) in that, as hereinafter set forth, the time intervening between the date when information upon which this section is based became available and the time when this section must become effective in order to effectuate the declared policy of the act is insufficient; a reasonable time is permitted, under the circumstances, for preparation for such effective time; and good cause exists for making the provisions hereof effective not later than June 27, 1956. A reasonable determination as to the supply of, and the demand for, such plums must await the development of the crop thereof, and adequate information thereon was not available to the Plum Commodity Committee until June 19, 1956; recommendation as to the need for, and the extent of regulation of shipments of such plums was made at the meeting of said committee on June 19, 1956, after consideration of all available information relative to the supply and demand conditions for such plums, at which time the recommendation and supporting information were submitted to the Department; shipments of the current crop of such plums are expected to begin on or about July 1, 1956; this section should be applicable to all such shipments in order to effectuate the declared policy of the act; and compliance with the provisions of this section will not require of handlers any preparation therefor which cannot be completed by the effective time hereof.

(b) *Order*. (1) During the period beginning at 12:01 a. m., P. s. t., June 27, 1956, and ending at 12:01 a. m., P. s. t., November 1, 1956, no shipper shall ship any package or container of Duarte plums unless such plums grade at least U. S. No. 1; and

(i) If the plums are packed in a standard basket, they are of a size not smaller than a size that will pack a 4 x 5 standard pack;

(ii) If the plums are packed in a special plum box, they are of a size not smaller than a size that will pack a 7-row standard pack;

(iii) If the plums are packed in any container other than a standard basket or special plum box, ninety (90) percent, by count, of the plums measure $1\frac{10}{16}$ inches in diameter and of the remainder of the plums none measures less than $1\frac{7}{16}$ inches in diameter: *Provided*, That, no lot of plums shall be considered as failing to meet this requirement if one package of such plums contains not more than one (1) percent, by count, of plums that are smaller than $1\frac{7}{16}$ inches in diameter; and

(iv) The diameters of the smallest and largest plums in the package or container do not vary more than one-fourth inch: *Provided*, That, a total of not more than five (5) percent, by count, of the plums in the package or container may fail to meet this requirement.

(2) Section 936.143 sets forth the requirements with respect to the inspection and certification of shipments of fruit covered by this section. Such section

also prescribes the conditions which must be met if any shipment is to be made without prior inspection and certification. Notwithstanding that shipments may be made without inspection and certification, each shipper shall comply with all grade and size regulations applicable to the respective shipment.

(3) As used in this section, "U. S. No. 1," "fairly uniform in size," and "standard pack" shall have the same meaning as set forth in the revised United States Standards for plums and prunes (fresh) (§§ 51.1520 to 51.1530 of this title); "standard basket" shall mean the standard basket set forth in paragraph 1 of section 828.1 of the Agricultural Code of California; "special plum box" shall mean the special plum box set forth in section 828.15 of the Agricultural Code of California; "7-row standard pack" shall mean that the top layer of the pack contains 52 plums which are fairly uniform in size and the plums in the top layer are not superior in size to those in the remainder of the pack; "diameter" means the shortest distance measured through the center of a plum at a right angle to a line running from the stem to the blossom end; and, except as otherwise specified, all other terms shall have the same meaning as when used in the amended marketing agreement and order.

(Sec. 5, 49 Stat. 753, as amended; 7 U. S. C. 608c)

Dated: June 21, 1956.

[SEAL] S. R. SMITH,
Director, Fruit and Vegetable Division, Agricultural Marketing Service.

[F. R. Doc. 56-5030; Filed, June 25, 1956; 8:51 a. m.]

[Plum Order 12]

PART 936—FRESH BARTLETT PEARS, PLUMS, AND ELBERTA PEACHES GROWN IN CALIFORNIA

REGULATION BY GRADES AND SIZES

§ 936.536 *Plum Order 12*—(a) *Findings.* (1) Pursuant to the marketing agreement, as amended, and Order No. 36, as amended (7 CFR Part 936), regulating the handling of fresh Bartlett pears, plums, and Elberta peaches grown in the State of California, effective under the applicable provisions of the Agricultural Marketing Agreement Act of 1937, as amended, and upon the basis of the recommendations of the Plum Commodity Committee, established under the aforesaid amended marketing agreement and order, and upon other available information, it is hereby found that the limitation of shipments of plums of the variety hereinafter set forth, and in the manner herein provided, will tend to effectuate the declared policy of the act.

(2) It is hereby further found that it is impracticable and contrary to the public interest to give preliminary notice, engage in public rule-making procedure, and postpone the effective date of this section until 30 days after publication thereof in the FEDERAL REGISTER (60 Stat. 237; 5 U. S. C. 1001 et seq.) in that, as hereinafter set forth, the time intervening between the date when information upon which this section is based became available and the time when this section must become effective in order to effectuate the declared policy of the act is insufficient; a reasonable time is permitted, under the circumstances, for preparation for such effective time; and good cause exists for making the provisions hereof effective not later than June 27, 1956. A reasonable determination as to the supply of, and the demand for, such plums must await the development of the crop thereof, and adequate information thereon was not available to the Plum Commodity Committee until June 19, 1956; recommendation as to the need for, and the extent of, regulation of shipments of such plums was made at the meeting of said committee on June 19, 1956, after consideration of all available information relative to the supply and demand conditions for such plums, at which time the recommendation and supporting information were submitted to the Department; shipments of the current crop of such plums are expected to begin on or about July 12, 1956; this section should be applicable to all such shipments in order to effectuate the declared policy of the act; and compliance with the provisions of this section will not require of handlers any preparation therefor which cannot be completed by the effective time hereof.

(b) *Order.* (1) During the period beginning at 12:01 a. m., P. s. t., June 27, 1956, and ending at 12:01 a. m., P. s. t., November 1, 1956, no shipper shall ship from any shipping point during any day any package or container of Becky Smith plums unless such plums grade at least U. S. No. 1 and, except to the extent otherwise permitted under this paragraph,

(i) If the plums are packed in a standard basket, they are of a size not smaller than a size that will pack a 4 x 4 standard pack;

(ii) If the plums are packed in a special plum box, they are of a size not smaller than a size that will pack a 6-row standard pack;

(iii) If the plums are packed in any container other than a standard basket or special plum box, ninety (90) percent, by count, of the plums measure $1\frac{12}{16}$ inches in diameter and of the remainder of the plums none measures less than $1\frac{9}{16}$ inches in diameter: *Provided*, That, no lot of plums shall be considered as failing to meet this requirement if one package of such plums contains not more than one (1) percent, by count, of plums that are smaller than $1\frac{9}{16}$ inches in diameter; and

(iv) The diameters of the smallest and largest plums in the package or container do not vary more than one-fourth inch: *Provided*, That a total of not more than five (5) percent, by count, of the plums in the package or container may fail to meet this requirement.

(2) During each day of the aforesaid period, any shipper may ship from any shipping point a quantity of such plums, by number of packages or containers, which are of a size smaller than the size prescribed in subparagraph (1) of this paragraph if said quantity does not exceed eleven and eleven one-hundredth ($11\frac{11}{100}$) percent of the number of the same type of packages or containers of plums shipped by such shipper which meet the size requirement of said subparagraph (1) of this paragraph and all such smaller plums meet the applicable one of the following requirements:

(i) If the plums are packed in a standard basket, they are of a size not smaller than a size that will pack a 4 x 5 standard pack;

(ii) If the plums are packed in a special plum box, they are of a size not smaller than a size that will pack a 7-row standard pack;

(iii) If the plums are packed in any container other than a standard basket or special plum box, ninety (90) percent, by count, of the plums measure $1\frac{10}{16}$ inches in diameter and of the remainder of the plums none measures less than $1\frac{7}{16}$ inches in diameter: *Provided*, That, no lot of plums shall be considered as failing to meet this requirement if one package of such plums contains not more than one (1) percent, by count, of plums that are smaller than $1\frac{7}{16}$ inches in diameter; and

(iv) The diameters of the smallest and largest plums in the package or container do not vary more than one-fourth inch: *Provided*, That, a total of not more than five (5) percent, by count, of the plums in the package or container may fail to meet this requirement.

(3) If any shipper, during any day of the aforesaid period, ships from any shipping point less than the maximum allowable quantity of such plums that may be of a size smaller than the size prescribed in subparagraph (1) of this paragraph, the quantity of such undershipment may be shipped by such shipper only from such shipping point during the next 2 succeeding calendar days but only after shipment has been made of any other quantities of such smaller-sized plums such shipper is authorized to ship on those 2 succeeding calendar days.

(4) As used in this section, "U. S. No. 1," "fairly uniform in size," "diameter," and "standard pack" shall have the same meaning as set forth in the revised United States Standards for plums and prunes (fresh) (§§ 51.1520 to 51.1530 of this title); "standard basket" shall mean the standard basket set forth in paragraph 1 of section 828.1 of the Agricultural Code of California; "special plum box" shall mean the special plum box set forth in section 828.15 of the Agricultural Code of California; "6-row standard pack" shall mean that the top layer of the pack contains 39 plums which are fairly uniform in size and the plums in the top layer are not superior in size to those in the remainder of the pack; "7-row standard pack" shall mean that the top layer of the pack contains 52 plums which are fairly uniform in size and the plums in the top layer are not superior in size to those in the remainder of the pack; and, except as otherwise specified, all other terms shall have the same meaning as when used in the amended marketing agreement and order.

(5) Section 936.143 sets forth the requirements with respect to the inspection and certification of shipments of fruit covered by this section. Such section also prescribes the conditions which must be met if any shipment is to be made without prior inspection and certification. Notwithstanding that shipments may be made without inspection and certification, each shipper shall comply with all grade and size regulations applicable to the respective shipment.

(Sec. 5, 49 Stat. 753, as amended; 7 U. S. C. 608c)

Dated: June 21, 1956.

[SEAL] S. R. SMITH,
Director, Fruit and Vegetable Division, Agricultural Marketing Service.

[F. R. Doc. 56-5031; Filed, June 25, 1956; 8:51 a. m.]

TITLE 6—AGRICULTURAL CREDIT

Chapter III—Farmers Home Administration, Department of Agriculture

Subchapter B—Farm Ownership Loans

[FHA Instruction 401.2]

PART 311—BASIC REGULATIONS

SUBPART B—LOAN LIMITATIONS

AVERAGE VALUES OF FARMS; VIRGINIA

On May 29, 1956, for the purposes of title I of the Bankhead-Jones Farm Tenant Act, as amended, average values of efficient family-type farm-management units for the counties identified below were determined to be as herein set forth. The average values heretofore established for said counties, which appear in the tabulations of average values under § 311.29, Chapter III, Title 6 of the Code of Federal Regulations, are hereby superseded by the average values set forth below for said counties.

VIRGINIA

County:	*Average value*
Buchanan	$18,000
Dickenson	18,000
Scott	20,000
Wise	20,000

(Sec. 41 (i), 50 Stat. 528, as amended; 7 U. S. C. 1015 (i))

Dated: June 20, 1956.

[SEAL] H. C. SMITH,
Acting Administrator, Farmers Home Administration.

[F. R. Doc. 56-5001; Filed, June 25, 1956; 8:47 a. m.]

[1956 C. C. C. Flaxseed Bulletin 1, Amdt. 1]

PART 421 GRAINS AND RELATED COMMODITIES

SUBPART 1956 TEXAS FLAXSEED PURCHASE PROGRAM

BASIC PURCHASE PRICES

Correction

In F. R. Doc. 56-4829, appearing at page 4313 of the issue for Wednesday, June 20, 1956, the following changes should be made in the table of basic purchase rates:

1. The county name "Forio" should read "Frio", and the county name "Haverick" should read "Maverick".

2. The basic purchase rate for San Patricio County should read $2.96, instead of $3.96.

Chapter IV—Commodity Stabilization Service and Commodity Credit Corporation, Department of Agriculture

Subchapter B—Loans, Purchases, and Other Operations

[1956 C. C. C. Grain Price Support Bulletin 1, Supp. 1, Flaxseed]

PART 421—GRAINS AND RELATED COMMODITIES

SUBPART—1956-CROP FLAXSEED LOAN AND PURCHASE AGREEMENT PROGRAM

Correction

In F. R. Doc. 56-4760, appearing at page 4265 of the issue for Tuesday, June 19, 1956, the following changes should be made:

1. The fourth line of table under § 421.2083 (a) should read:

Duluth, Minneapolis, and St. Paul, Minn	3.39

2. The word "county" in the fourth line of § 421.2083 (c) (1) should read "country."

TITLE 15—COMMERCE AND FOREIGN TRADE

Chapter II—National Bureau of Standards, Department of Commerce

Subchapter B—Standard Samples

PART 230—STANDARD SAMPLES AND REFERENCE STANDARDS ISSUED BY NATIONAL BUREAU OF STANDARDS

SUBPART B—STANDARD SAMPLES WITH SCHEDULE OF WEIGHTS AND FEES

DESCRIPTIVE LIST; MISCELLANEOUS AMENDMENT

In accordance with the provisions of section 4 (a) and (c) of the Administrative Procedure Act, it has been found that notice and hearing on these schedules of fees are unnecessary for the reason that such procedures, because of the nature of these rules, serve no useful purpose. These schedules are effective from June 22, 1956.

Section 230.11 *Descriptive list*, is amended as follows:

1. Paragraph (r) *Radioactive standards* is amended by the addition of standard 4933 to read as follows:

RADIOACTIVE STANDARDS—ALPHA-BETA-GAMMA STANDARDS

Sample No.	Radiation	Nuclide	Nominal activity	Volume	Price per sample
4933	$\beta(\gamma)$	Potassium-42 [1]	10^4 dps/ml [g]	(h)	$20.00

(Sec. 9, 31 Stat. 1450, as amended; 15 U. S. C. 277. Interprets or applies sec. 8, 31 Stat. 1450, as amended; 15 U. S. C. 276)

A. V. ASTIN,
Director,
National Bureau of Standards.

[F. R. Doc. 56-5004; Filed, June 22, 1956; 12:31 p. m.]

TITLE 21—FOOD AND DRUGS

Chapter I—Food and Drug Administration, Department of Health, Education, and Welfare

Subchapter A—General

PART 3—STATEMENTS OF GENERAL POLICY OR INTERPRETATION

PESTICIDE CHEMICALS; FURTHER EXTENDED DATES ON WHICH STATUTE SHALL BECOME FULLY EFFECTIVE

Requests have been received for further extensions of the date when the amendment to section 402 (a) of the Federal Food, Drug, and Cosmetic Act (68 Stat. 511 et seq.; 21 U. S. C. 342, 346a) shall become effective for certain pesticide chemicals.

One request is for extension to permit continued use of ethylene oxide as a fumigant for copra. The request is supported by the data outlined in the amendment of Statement of Policy § 3.44 *Pesticide chemicals; further extended dates on which statute shall become fully effective*, published in the FEDERAL REGISTER of February 21, 1956 (21 F. R. 1172) and by a showing that a petition can be submitted for tolerances for ethylene oxide residues in copra before July 22, 1956.

One request is for extension to permit the use of piperonyl butoxide and pyrethrins as an insect spray on harvested tomatoes at canneries. A petition has been submitted requesting that these pesticide chemicals be exempted from the requirement of a tolerance when used for this purpose.

Extension is necessary for residues of ethylene oxide on copra and of piperonyl butoxide and pyrethrins on harvested tomatoes.

Now, therefore, in exercise of the authority vested in the Secretary of Health, Education, and Welfare by the Federal Food, Drug, and Cosmetic Act (secs. 402 (a) (2), 408, 68 Stat. 511, 517 (Ch. 559, Secs. 2, 5); 21 U. S. C. 342 (a) (2) and note 1 under section 342; 346a) and delegated to the Commissioner of Food and Drugs by the Secretary (20 F. R. 1996), the following order is promulgated:

Section 3.44 *Pesticide chemicals; further extended dates on which statute shall become fully effective* (21 CFR, 1955 Edition, 3.44; as amended 21 F. R. 1463, 2327, 2591, 2861, 3218) is amended by inserting in paragraph (a) (6), after the item "Ethylene dichloride * * *" the item: "Ethylene oxide: In copra.", and by changing the explanatory statements under the items "Piperonyl butoxide" and "Pyrethrins" to read: "On livestock as a fly spray; on stored raw agricultural commodities as follows: Almonds, beans, cocoa beans, copra, grain sorghum, peanuts, peas, walnuts; on harvested tomatoes."

(Sec. 701, 52 Stat. 1055. Interpret or apply secs. 402, 408, 68 Stat. 511, 517; 21 U. S. C. 342, 346a)

Dated: June 19, 1956.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

[F. R. Doc. 56-4992; Filed, June 25, 1956; 8:45 a. m.]

Subchapter B—Food and Food Products

PART 120—TOLERANCES AND EXEMPTIONS FROM TOLERANCES FOR PESTICIDE CHEMICALS IN OR ON RAW AGRICULTURAL COMMODITIES

TOLERANCES FOR RESIDUES OF SODIUM O-PHENYLPHENATE

A petition was filed with the Food and Drug Administration requesting the establishment of tolerances for residues of sodium *o*-phenylphenate in or on apples and pears.

The Secretary of Agriculture has certified that this pesticide chemical is useful for the purposes for which tolerances are being established.

After consideration of the data submitted in the petition and other relevant material which show that the tolerances established in this order will protect the public health, and by virtue of the authority vested in the Secretary of Health, Education, and Welfare by the Federal Food, Drug, and Cosmetic Act (sec. 408 (d) (2), 68 Stat. 512; 21 U. S. C. 346a (d) (2)) and delegated to the Commissioner of Food and Drugs by the Secretary (21 CFR 120.7 (g)), the regulations for tolerances for pesticide chemicals in or on raw agricultural commodities (21 CFR Part 120; 21 F. R. 1172) are amended by changing § 120.129 to read as follows:

§ 120.129 *Tolerances for residues of sodium o-phenylphenate.* (a) A tolerance of 10 parts per million is established for residues of sodium *o*-phenylphenate, calculated as *o*-phenylphenol, in or on each of the following citrus fruits: Oranges, lemons, grapefruit, tangerines, limes, tangelos, citrus citron, kumquat.

(b) A tolerance of 5 parts per million is established for residues of sodium *o*-phenylphenate, calculated as *o*-phenylphenol, in or on apples and pears.

Any person who will be adversely affected by the foregoing order may at any time prior to the thirtieth day from the effective date thereof, file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, D. C., written objections thereto. Objections shall show wherein the person filing will be adversely affected by this order, specify with particularity the provisions of the order deemed objectionable and reasonable grounds for the objections, and request a public hearing upon the objections. Objections may be accompanied by a memorandum or brief in support thereof. All documents shall be filed in quintuplicate.

Effective date. This order shall be effective upon publication in the FEDERAL REGISTER.

(Sec. 701, 52 Stat. 1055, as amended; 21 U. S. C. 371. Interprets or applies sec. 408, 68 Stat. 511; 21 U. S. C. 346a)

Dated: June 19, 1956.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

[F. R. Doc. 56-4991; Filed, June 25, 1956; 8:45 a. m.]

Subchapter C—Drugs

PART 141a—PENICILLIN AND PENICILLIN-CONTAINING DRUGS—TESTS AND METHODS OF ASSAY

CRYSTALLINE PENICILLIN-STREPTOMYCIN- (OR DIHYDROSTREPTOMYCIN-) POLYMYXINOXYTETRACYCLINE-CARBOMYCIN POWDER VETERINARY

Correction

In F. R. Document 56-4861 appearing in the issue for Thursday, June 21, 1956, at page 4341, make the following change: In § 141a.90 (a) (3), line 9, the word "milligram" should read "milliliter".

TITLE 24—HOUSING AND HOUSING CREDIT

Chapter I—Federal Home Loan Bank Board

Subchapter A—General Regulations of the Federal Home Loan Bank Board

[No. 9715]

PART 109—RULES OF PRACTICE AND PROCEDURE; ADJUDICATIONS UNDER ADMINISTRATIVE PROCEDURE ACT

JUNE 21, 1956.

Resolved, that, pursuant to Part 108 of the general regulations of the Federal Home Loan Bank Board (24 CFR Part 108), the general regulations of the Federal Home Loan Bank Board (24 CFR Chap. I, Subchapter A) are hereby amended by adding a new Part 109 at the end thereof to read as follows:

Sec.	
109.1	Scope of regulations.
109.2	Service, filing of papers, etc.
109.3	Notice of hearing.
109.4	Attendance at hearings.
109.5	Conduct of hearings.
109.6	Rules of evidence.
109.7	Transcript of testimony.
109.8	Proposed findings and conclusions and recommended decisions.
109.9	Exceptions; filing of briefs.
109.10	Decision of the board.

AUTHORITY: §§ 109.1 to 109.10 issued under sec. 17, 47 Stat. 1736, as amended; 12 U. S. C. 1437. Interpret or apply sec 6, 47 Stat. 727, as amended, sec. 5, 48 Stat. 132, as amended; sec. 407, 48 Stat. 1260, as amended; 12 U. S. C. 1730, 1426, 1464. Reorg. Plan No. 3 of 1947, 12 F. R. 4981, 3 CFR, 1947 Supp.

§ 109.1 *Scope of regulations.* The provisions of this part shall govern hearings to determine whether cause exists, under the provisions of section 6 (i) of the Federal Home Loan Bank Act, as amended (12 U. S. C. 1426 (i)), for the removal of any member of a Federal Home Loan Bank from membership or for depriving any nonmember borrower of the privilege of obtaining advances from a Federal Home Loan Bank; hearings under the provisions of section 5 (d) of the Home Owners' Loan Act of 1933, as amended (12 U. S. C. 1464 (d)), involving alleged violations of law or regulation by a Federal savings and loan association and upon the existence of grounds for the appointment of a conservator or receiver for a Federal savings and loan association; and hearings to determine whether cause exists for the termination of the insured status of any institution insured by the Federal Savings and Loan Insurance Corporation, as provided in section 407 of the National Housing Act, as amended (12 U. S. C. 1730).

§ 109.2 *Service, filing of papers, etc.*—(a) *Proof of service.* All documents or papers required to be served by the Board on the institution involved shall be served by the Secretary unless some other person shall be designated for such purpose by the Board. Such service, shall be made by personal service or by registered mail addressed to the last known address as shown on the records of the Board, on the attorney or representative of record of the institution involved, provided that if there is no attorney or representative of record, such service shall be made upon the institution involved at the last known address, as shown on the records of the Board. The term Secretary as used in this part shall mean the Secretary and any Assistant Secretary to the Board.

(b) *Filing of papers.* All material required to be filed with the Board or the Secretary to the Federal Home Loan Bank Board in any proceedings shall be filed with the Secretary, Federal Home Loan Bank Board, Washington 25, D. C. Any such papers may be sent to the Secretary by mail or express but must be received by the Secretary in the office of the Board in Washington, D. C., or be postmarked, within the time limited for the particular filing.

(c) *Form.* All papers filed under this part must include at the head thereof or on the title page, the name of the Board, the name of the institution against which such action is being brought, the number of the resolution giving notice of the hearing, and the subject matter of the particular paper. All such papers shall be typewritten, mimeographed, or printed, and must be signed in the case of the Board by Counsel for the Board or, in the case of the institution involved, by such institution, its duly authorized agent or attorney, and must show the address of the signer.

(d) *Copies.* Unless otherwise specifically provided in the notice of hearing, an original and 7 copies of all documents and papers required or permitted to be filed or served under this part, except the transcript of testimony and exhibits, shall be furnished to the Secretary.

(e) *Computing time.* In computing any period of time prescribed or allowed by this part, the date of the act, event or default from which the designated period of time begins to run is not to be included. The last day so computed is to be included, unless it is a Saturday, Sunday or legal holiday in the District of Columbia, in which event the period shall run until the end of the next day which is neither a Saturday, Sunday nor legal holiday. Intermediate Saturdays, Sundays and legal holidays shall be included in the computation unless the time within which the act is to be performed is 10 days or less in which event Saturdays, Sundays and legal holidays shall not be included. Half holidays shall be considered as other days and not as holidays.

§ 109.3 *Notice of hearing.* Whenever a hearing is ordered by the Board in any proceedings a notice of hearing shall be given by the Secretary to the Board to the institution involved. Such notice shall designate the time and place of the hearing and the nature thereof, shall specify the charges, and shall be served by delivering the same personally or by registered mail to the home office of the institution involved, at its last known address as shown on the records of the Board. No hearing shall be held upon less than 30 days' notice except that hearings held pursuant to section 5 (d) of the Home Owners' Loan Act of 1933, as amended, may be held upon not less than 20 days' notice.

§ 109.4 *Attendance at hearings.* All hearings shall be private and shall be attended only by the institution involved and its representative or counsel, representatives and counsel of the Board, witnesses, and other persons having an official interest in the proceedings: *Provided, however,* That on the written request of the institution, or counsel for the Board, or on its own motion, the Board may permit other persons to attend any such hearing or may order the hearing to be public.

§ 109.5 *Conduct of hearings.* Each hearing shall be held before a Trial Examiner, one or more Members of the Board, or the Board (hereinafter referred to as Presiding Officer, which term shall be construed to include whichever of the three shall preside at a hearing hereunder, except as otherwise specified in the text), as determined by the Board. The Presiding Officer who shall be designated to conduct any hearing shall have complete charge of such hearing; have authority to permit the examination of witnesses, to receive evidence, rule upon the admission of evidence, allow and deny motions, except that in the case of any hearing which is held before a Presiding Officer other than the Board, such Presiding Officer shall not have power to decide any motion to dismiss the proceedings or other motion which results in final determination of the merits of the proceedings; and to adjourn such hearing from time to time and, as permitted by law or agreed to by the parties, from place to place. The Presiding Officer shall have power to administer oaths and affirmations and, to issue subpenas and subpenas duces tecum, as authorized by law, and shall issue such at the request of any interested party. The Presiding Officer may hold conferences before or during the hearing for the settlement or simplification of issues by consent of the parties. Without limitation on the foregoing the Presiding Officer shall, subject to the provisions of this part have all the authority of section 7 (B) of the Administrative Procedure Act.

§ 109.6 *Rules of evidence.* Any party to the hearing shall have the right to present his case or defense by oral and documentary evidence, to submit rebuttal evidence and conduct such cross-examination as may be required for a clear and true disclosure of the facts. Immaterial, irrelevant or unduly repetitious evidence shall be excluded. Objections to the admission or exclusion of evidence shall state the grounds of objection relied upon but no argument thereon shall be permitted, except as may be ordered or requested by the Presiding Officer. Rulings on such objections and all other matters shall be part of the transcript. Failure timely to object to the admission or exclusion of evidence or to any ruling shall be considered a waiver of such objection.

§ 109.7 *Transcript of testimony.* Hearings shall be recorded and transcripts will be made available to the institution involved upon payment therefor at the reasonable cost thereof and, in the event the hearing is public, or the Board shall so authorize, shall be furnished on similar payment to other persons. A copy of the transcript of the testimony taken at any hearing, duly certified by the Reporter, together with all exhibits and any briefs or memoranda of law theretofore filed in the cause shall be filed with the Secretary to the Board. The Secretary shall by registered mail notify the institution of such filing. The Presiding Officer shall have authority to rule upon motions to correct the record.

§ 109.8 *Proposed findings and conclusions and recommended decisions*—(a) *Proposed findings and conclusions by parties.* Each party to a hearing shall have a period of 15 days or such further time as the Presiding Officer for good cause shall determine, running from the date of the notice of the filing of the transcript to file with the Secretary, for submission to the Presiding Officer of proposed findings and conclusions, which may be accompanied by a brief or memorandum in support thereof. A copy of all such material shall be delivered by the Secretary to the Presiding Officer and to the other party to the proceedings, and all such proposals, briefs and memoranda shall become a part of the record.

(b) *Recommended decision and filing of record.* The presiding Officer, unless such Presiding Officer shall be the Board, shall, within 15 days after the expiration of the time allowed for the filing of proposed findings and conclusions or within such further time as the Board for good cause shall determine, file with the Secretary and certify to the Board for decision the entire record of the hearings, which shall include his findings and conclusions and his recommended decision, the transcript, exhibits (including on request of the parties concerned any exhibits excluded from evidence or tenders of proof), exceptions, rulings, and all briefs and memoranda filed in connection with the hearing.

§ 109.9 *Exceptions; filing of briefs.* Promptly upon the filing of the record the Secretary shall serve on the institution involved a notice of such filing together with a copy of the Presiding Officer's findings, conclusions and recommended decision. Each party shall have a period of 15 days from the date of such notice, or such further time as the Board for good cause shall determine, to file with the Secretary exceptions to the findings, conclusions, and recommended decision or any part thereof, or to the failure to make any finding, conclusion, or recommendation, or to the admission or exclusion of evidence, or other ruling of the Presiding Officer, supported by such brief as may appear advisable. A copy of any exceptions filed by counsel for the Board and of any brief filed by such counsel shall promptly be served upon the institution. A reply brief may be filed with the Secretary by counsel for the Board within ten days after the filing of the institution's brief, and a reply brief may be filed with the Secretary by the institution within ten days after the date of service by the Secretary upon the institution of a copy of the brief of counsel for the Board. Further briefs may be filed only with permission of the Board.

§ 109.10 *Decision of the Board.* A copy of the decision of the Board shall be furnished by the Secretary to the institution involved and if directed by the Board to any appropriate governmental supervisory authority.

Resolved further that, these amendments should be made effective as soon as possible, as any delay in action authorized by this part because of a later effective date will reduce the benefits to the parties affected thereby. All persons who may be affected by the issuance of this part have had a reasonable opportunity to prepare for the effective date thereof, or to take any other action which the issuance of this part may prompt. This proposed Part 109 was duly published February 4, 1956 (21 F. R. 813) and no persons have filed any written data or made oral arguments with respect thereto either within the time allotted or at any later date. There have been no substantial changes from the Proposed Rule published in 21 F. R. 813. In addition to the foregoing, this part is, essentially procedural in nature and is promulgated to carry into effect statutory amendments. Good cause is found, therefore, for issuing this Part 109, effective less than 30 days after publication in the FEDERAL REGISTER, as provided in section 4 of the Administrative Procedure Act (5 U. S. C. 1003).

These amendments shall be effective June 26, 1956.

By the Federal Home Loan Bank Board.

[SEAL] H. CAULSEN,
Assistant Secretary.

[F. R. Doc. 56-5032; Filed, June 25, 1956; 8:52 a. m.]

Subchapter B—Federal Home Loan Bank System

[No. 9716]

PART 123—MEMBERS OF BANKS

PROCEDURE FOR REMOVAL

JUNE 21, 1956.

Resolved that, pursuant to Part 108 of the general regulations of the Federal Home Loan Bank Board (24 CFR Part 108), § 123.32 of the regulations for the Federal Home Loan Bank System (24 CFR 123.32) is hereby amended to read as follows:

§ 123.32 *Procedure for removal*—(a) *Grounds for removal.* The grounds for the removal of a member from membership in a Federal Home Loan Bank or to deprive any nonmember borrower of the privilege of obtaining further advances from a Bank shall consist of any one or more of the following:

(1) The failure of the member or nonmember borrower to comply with any provision of the act.

(2) The failure of the member or nonmember borrower to comply with any regulation of the Board adopted pursuant to the act.

(3) The insolvency of the member or nonmember borrower. Any member which is a building and loan association, savings and loan association, cooperative bank or homestead association will be deemed insolvent if its assets are less than its obligations to creditors and others, including the holders of its withdrawable accounts.

(4) The management or home-financing policy of the member or nonmember borrower is of a character inconsistent with sound and economical home financing or with the purposes of the act.

(b) *Hearing.* In the event the Board is of the opinion that one or more of the grounds enumerated in paragraph (a) of this section exists for the removal of any member from membership or the depriving of any nonmember borrower of the privilege of obtaining further advances, the Board will give such member or nonmember borrower at least 30 days' written notice of its intention to terminate such membership or to deprive such nonmember borrower of the privilege of obtaining further advances, which notice shall state the grounds for such action and the time and place of a hearing at which the member or nonmember borrower may appear and be heard. Such notice shall be served upon the member or nonmember borrower in the manner provided by part 109 of this chapter. The hearing shall be conducted in accordance with the provisions of said part 109 of this chapter.

Resolved, further, that, these amendments should be made effective as soon as possible, as any delay in action authorized by this section because of a later effective date will reduce the benefits to the parties affected thereby. All persons who may be affected by the issuance of this section have had a reasonable opportunity to prepare for the effective date thereof, or to take any other action which the issuance of this amendment may prompt. This proposed section was duly published February 4, 1956 (21 F. R. 813) and no persons have filed any written data or made oral arguments with respect thereto either within the time allotted or at any later date. There have been no substantial changes from the Proposed Rule published in 21 F. R. 813. In addition to the foregoing, this amended section is, essentially procedural in nature and is promulgated to carry into effect statutory amendments. Good cause is found, therefore, for issuing this amended section effective less than 30 days after publication in the FEDERAL REGISTER, as provided in section 4 of the Administrative Procedure Act (5 U. S. C. 1003).

(Sec. 17, 47 Stat. 736, as amended; 12 U. S. C. 1437. Interprets and applies sec. 6, 47 Stat. 727, as amended; 12 U. S. C. 1426)

This amendment shall be effective June 26, 1956.

By the Federal Home Loan Bank Board.

[SEAL] H. CAULSEN,
Assistant Secretary.

[F. R. Doc. 56-5033; Filed, June 25, 1956; 8:52 a. m.]

Subchapter C—Federal Savings and Loan System

[No. 9717]

PART 142—RULES AND REGULATIONS; HEARINGS

PART 147—APPOINTMENT OF CONSERVATOR, RECEIVER AND SUPERVISORY REPRESENTATIVE IN CHARGE

PART 148—POWERS OF CONSERVATOR AND CONDUCT OF CONSERVATORSHIP

PART 149—POWERS OF RECEIVER AND CONDUCT OF RECEIVERSHIP

PART 150—POWERS OF RECEIVER AND CONDUCT OF RECEIVERSHIPS

MISCELLANEOUS AMENDMENTS

JUNE 21, 1956.

Resolved that, pursuant to Part 108 of the general regulations of the Federal Home Loan Bank Board (24 CFR Part 108) and § 142.1 of the rules and regulations for the Federal Savings and Loan System (24 CFR 142.1), the rules and regulations for the Federal Savings and Loan System (24 CFR Chap. I, Subchapter C) are hereby amended as hereinafter set forth:

(1) Part 142 is hereby amended by adding at the end thereof a new § 142.3, reading as follows:

§ 142.3 *Hearings; compliance with law and regulations.* If, in the opinion of the Board, a Federal association is in violation of any law or regulation to which it is subject, the Board in any proceeding under the provisions of section 5 (d) (1) of the Home Owners' Loan Act of 1933, as amended, shall, by formal resolution, state the alleged violation of law or regulation and give written notice to such Federal association of the facts alleged to be such violation, addressed to its home office. Such notice shall contain a statement that it is a formal notice issued pursuant to this section. In the event the Federal association does not correct such violation of law or regulation or perform such legal duty as it may be required to perform within 30 days after the date it shall have been served with such notice, the Board shall give such Federal association 20 days' written notice of the charges against it and of the date on which the Board will conduct a hearing as to such alleged violation or failure to perform. Unless the Federal association consents to another place, the hearing shall be held in the Federal judicial district in which the home office of such association is located. Such hearing shall be conducted in accordance with the pertinent provisions of Part 109 of this chapter. The cost of any hearing pursuant to the provisions hereof, as determined by the Board, may be assessed against the Federal association party to such hearing unless it is found, that such Federal association was not guilty of any of the alleged violations of law, regulation or duty.

(Sec. 17, 47 Stat. 736, as amended; 12 U. S. C. 1437. Inteprets or applies sec. 5, 48 Stat. 132, as amended; 12 U. S. C. 1464)

(2) Parts 147, 148, 149 and 150 are hereby repealed and the following new Parts 147, 148 and 149 adopted in lieu thereof:

PART 147—APPOINTMENT OF CONSERVATORS, RECEIVERS AND SUPERVISORY REPRESENTATIVES IN CHARGE

Sec.
147.1 Grounds for appointment of receiver or conservator.
147.2 Appointment of Supervisory Representatives in Charge.
147.3 Possession by Supervisory Representative in Charge.
147.4 Surrender of possession by Supervisory (Representative in Charge.
147.5 Consent to appointment of conservator or receiver.
147.6 Appointment of conservator or receiver; hearings.
147.7 Possession by conservator or receiver.
147.8 Surrender of possession by conservator or receiver.
147.9 Cost of hearings.

AUTHORITY: §§ 147.1 to 147.9 issued under sec. 17, 47 Stat. 736, as amended; 12 U. S. C. 1437. Interpret or applies sec. 5, 48 Stat. 132, as amended; 12 U. S. C. 1464.

§ 147.1 *Grounds for appointment of receiver or conservator.* The grounds for the appointment of a conservator or receiver for a Federal association shall consist of the existence of any one or more of the following:

(a) Insolvency of the Federal association, in that its assets are less than its obligations to its creditors and others, including its members;

(b) Violation of law or of a regulation;

(c) The concealment of the books, records or assets of the Federal association or the refusal to submit its books, papers, records or affairs for inspection to any examiner or lawful agent appointed by the Board;

(d) Unsafe or unsound operation.

§ 147.2 *Appointment of Supervisory Representative in Charge.* In the event the Board is of the opinion that one or more grounds enumerated in § 147.1 exist for the appointment of a conservator or receiver for a Federal association and determines that an emergency exists requiring immediate action, the Board may, by order, appoint, ex parte and without notice, a Supervisory Representative in Charge who shall forthwith, or at such time as may be fixed by the Board, take charge of said Federal association and its affairs, and such Supervisory Representative in Charge shall, to the extent authorized by the Board, have and exercise the same powers as a conservator or a receiver. The formal resolution of the Board so appointing any such Supervisory Representative in Charge shall state the ground or grounds which, in the opinion of the Board, exist for the appointment of a conservator or receiver and the reason or reasons which the Board determines exist requiring such immediate action. The Secretary to the Board shall mail a certified copy of such resolution to the address of the association as it shall appear on the records of the Board and to each director of the association known by the Secretary to be such, at the last address of each as the same shall appear on the records of the Board. Unless sooner removed by the Board, such Supervisory Representative in Charge shall hold office until a conservator or receiver appointed by the Board takes charge of such Federal association and its affairs, or for six months, or until thirty days after the termination of an administrative hearing and final proceedings as provided in paragraph 2 of subsection (d) of section 5 of the Home Owners' Loan Act of 1933, as amended (12 U. S. C. 1464 (d) and Supp.), or until sixty days after the final termination of any litigation affecting such temporary appointment, whichever is longest. Upon the expiration of a period of six months from the date of the appointment by the Board of a Supervisory Representative in Charge for a Federal association, the Board will restore such Federal association to its management unless, prior to the expiration of such period, the Supervisory Representative in Charge shall have been discharged, the Board shall have adopted a formal resolution providing for an administrative hearing upon the appointment of a conservator or receiver for such Federal association, or there is pending litigation affecting the appointment of the Supervisory Representative in Charge.

§ 147.3 *Possession by Supervisory Representative in Charge.* A Supervisory Representative in Charge shall forthwith upon appointment as such for a Federal association, or at such time as may be fixed by the Board, take possession of such association and, at the time he shall demand possession, shall serve a certified copy of the resolution of the Board appointing him as Supervisory Representative in Charge upon the officer or employee of the association, if any, who shall be in the home office of the association and appear to be in charge of such office. Immediately upon taking possession of such Federal association the Supervisory Representative in Charge shall succeed to all the rights, powers and privileges of the members of the Federal association, its officers and directors, or any of them. Such members, officers and directors shall not thereafter, except as hereinafter expressly provided, have or exercise any such rights, powers or privileges, or act in connection with any assets or property of any nature of the association: *Provided, however,* That the board of directors of such association, as such, or any member of such association, shall have the right to appear and be heard at any administrative hearing fixed by the Board for a determination upon the question of whether or not a conservator or receiver should be appointed for such Federal association, and the officers, directors, or the members of the Federal association, or any of them, may, from time to time, communicate with the Board with respect to the discharge of such Supervisory Representative in Charge and the release of the association from his control: *Provided further,* That the members of the association or the board of directors thereof, may by resolution consent to the appointment of a conservator or receiver for such association. The Board may, at any time, direct the Supervisory Representative in Charge to return the Federal association to its management; may provide for a meeting or meetings of the members for any purpose, including, without any limitation on the generality of the foregoing, an increase in the number of directors, the election of additional directors or an entire new board, and may provide for a meeting or meetings of the directors for any purpose, including, without any limitation on the generality of the foregoing, the filling of vacancies on the board of directors, the election of new officers, or both. Any such meeting of members or of directors may, as provided by the Board, be supervised or conducted by a representative of the Board. Such Supervisory Representative in Charge shall furnish bond in form and amount and with surety acceptable to the Director. The expenses incurred by a Supervisory Representative in Charge during the period that he continues in charge of any Federal association, including the cost of his bond and charges for his services, as determined by the Director, shall be paid out of the assets of the Federal association. In addition, all expenses incurred by the Board arising out of the appointment and affecting such appointment shall be paid by the association to the Board. The term "Director", when used in this Part, shall mean the Director and any Associate or Assistant Director of the Division of Supervision of the Board and the term Secretary to the Board shall also mean any Assistant Secretary to the Board.

§ 147.4 *Surrender of possession by Supervisory Representative in Charge*—(a) *To the association.* In the event the Board shall restore a Federal association which is in the hands of a Supervisory Representative in Charge to its management, such action, except as the Board may otherwise provide, shall restore the rights, powers and privileges of its members, officers and directors, all as of the time specified by the Board.

(b) *To a conservator or receiver.* In the event a Supervisory Representative in Charge is in charge of a Federal association and its affairs at the time of the appointment of a conservator or receiver for such association, such Supervisory Representative in Charge shall, as may be required by the Board, surrender his control and management of such association and its affairs to such conservator or receiver.

(c) *Reports, final report and discharge.* A Supervisory Representative in Charge shall make such reports to the Board as the Board may require and at the time he shall surrender possession of a Federal association of which he has been placed in charge, shall make such final report and accounting to the Board as the Board shall require. The Board may at any time require an examination or audit, or both, of the affairs of a Federal association under the control of a Supervisory Representative in Charge. Upon a determination by the Board that a final accounting to a Supervisory Representative in Charge is satisfactory, the Board will grant to such Supervisory Representative in Charge, a complete and final release and discharge.

§ 147.5 *Consent to appointment of conservator or receiver.* In the event the board of directors or members of any Federal association, by appropriate resolution, consent to the appointment of a conservator or receiver for such association, the Board may, in its discretion, appoint such conservator or receiver.

§ 147.6 *Appointment of conservator or receiver; hearings.* In the event the Board is of the opinion that any of the grounds specified in § 147.1 exist for the appointment of a conservator or receiver for a Federal association, the Board will, by formal resolution, state the ground or grounds which, in its opinion, are cause for the appointment of a conservator or receiver for such Federal association and provide therein an opportunity for an administrative hearing upon the matter at which the Federal association may appear and show cause why such conservator or receiver should not be appointed. Such resolution shall state the time and place of such hearing, which hearing shall be held in the Federal judicial district in which the home office of the Federal association is located, unless such association consents to another place. Any such hearing shall be subject to review as provided in the Administrative Procedure Act, and any review by a court shall be upon the weight of the evidence. Notice of opportunity to appear and be heard at such administrative hearing shall be given to the Federal association by the Secretary to the Federal Home Loan Bank Board who shall forthwith, upon the action of the Board providing for such hearing, mail an authenticated copy of the formal resolution of the Board, by registered mail, to the last address of the Federal association as it shall appear on the records of the Board and to each director of the association known by the Secretary to be such, at the last known address of each, as the same shall appear on the records of the Board. The board of directors of the Federal association, whether such association is in charge of a Supervisory Representative in Charge or otherwise, may, by the adoption of a resolution and the filing of a certified copy thereof with the Board within fifteen days after the mailing of notice of hearing, demand a more definite statement of the ground or grounds stated in the resolution for the appointment of a conservator or a receiver of the Federal Home Loan Bank Board. Any interested party may, at any time prior to the date fixed for the hearing, submit for consideration facts, arguments, offers of settlement and proposals of adjustment. In the event the Federal association does not appear at the administrative hearing and show cause why a conservator or receiver should not be appointed, the Board may forthwith appoint a conservator or receiver for such Federal association. In the event the Federal association shall appear at such administrative hearing, such hearing shall be held in the manner provided in Part 109 of this chapter and in accordance with the Administrative Procedure Act, as in force and effect at the time such hearing is held. In the event the final decision of the Board shall be that a conservator or receiver should be appointed, the action of the Board in appointing such conservator or receiver shall provide that such conservator or receiver shall take possession of the association immediately or at such time as may be fixed by the Board. A copy of such final decision of the Board shall be furnished by the Secretary to the Federal Home Loan Bank Board to each party appearing at the hearing, either in person or by registered mail, addressed to such interested party at his last address as the same shall appear on the records of the Board. Notice of appointment of a receiver or conservator shall forthwith be filed for publication in the FEDERAL REGISTER. The appointment of a receiver shall be for the purpose of liquidation.

§ 147.7 *Possession by conservator or receiver.* A conservator or receiver shall take possession of the Federal association for which he has been so appointed in accordance with the terms of such appointment and, at the time he shall demand possession, notify the officer or employee of the association, if any, who shall be in the home office of the association and appears to be in charge of such office, of the action of the Board. Immediately upon taking possession of such Federal association, such conservator or receiver shall forthwith take possession of the books, records and assets of every description of such association and (a) a conservator shall succeed to all the rights, powers and privileges of its members, its officers and directors, or any of them, and (b) a receiver, by operation of law and without any conveyance and other instrument, act or deed shall succeed to all the rights, titles, powers and privileges of the Federal association and shall succeed to the rights, powers and privileges of its members, its officers and directors, or any of them. Such members, officers or directors, or any of them, shall not thereafter, except as hereinafter expressly provided, have or exercise any such rights, powers or privileges, or act in connection with any assets or property of any nature of the association: *Provided, however,* That any officer, director or member of such association shall have the right from time to time to communicate with the Board with respect to such conservatorship or receivership. Such conservator or receiver shall furnish bond in form and amount and with surety acceptable to the Director. The Board may, at any time, direct the conservator or receiver to return the Federal association to its previous or a newly constituted management; may provide for a meeting or meetings of the members for any purpose, including, without any limitation on the generality of the foregoing, the election of directors or an increase in the number of directors, or both or the election of an entire new board; and may provide for a meeting or meetings of the directors for any purpose, including, without any limitation on the generality of the foregoing, the filling of vacancies on the board of directors, the removal of officers, and the election of new officers, or for any of such purposes. Any such meeting of members or of directors may, as provided by the Board, be supervised or conducted by a representative of the Board.

§ 147.8 *Surrender of possession by conservator or receiver.* (a) *To the association.* In the event the Board shall restore a Federal association which is in the hands of a conservator or receiver to its management, such action except as the Board may otherwise provide, shall restore the rights, powers and privileges of its members, officers and directors, all as of the time specified by the Board. The return of a Federal association to its management from the possession of a receiver shall, by operation of law and without any conveyance or other instrument, act, or deed, revest in such Federal association the title to all its property.

(b) *To a receiver.* In the event a conservator is in possession of a Federal association and its affairs at the time of appointment of a receiver for such association, such conservator shall, as may be required by the Board, surrender possession of such association and its affairs to such receiver.

§ 147.9 *Costs of hearings.* Costs, as determined by the Board, of hearings held pursuant to § 147.6 may be assessed against the Federal association party to such hearing unless it is found, upon such hearing, that grounds did not exist for the appointment of a conservator or receiver.

PART 148—POWERS OF CONSERVATOR AND CONDUCT OF CONSERVATORSHIPS

Sec.
148.1 Procedure upon taking possession.
148.2 Powers and duties of Conservator.
148.3 Creditors.
148.4 Share interests.
148.5 Examinations, inventories, reports, costs and expenses.
148.6 Final discharge and release of conservator.
148.7 Inspection of reports.
148.8 Delegation by conservator.

AUTHORITY: § 148.1 to 148.8 issued under sec. 1, 47 Stat. 736, as amended; 12 U. S. C. 1437. Interprets or applies sec. 5, 48 Stat. 132, as amended; 12 U. S. C. 1464.

§ 148.1 *Procedure upon taking possession.* Upon taking possession, pursuant to § 147.7 of this subchapter, of such Federal association, the conservator shall forthwith:

(a) Notify, by written notice served personally or by registered mail or telegraph, all banks, trust companies and all other individuals, partnerships, corporations, and associations known to such conservator to be holding or in possession of any assets of such association,

(b) File with the Secretary to the Board a statement (1) that he has taken possession, pursuant to § 147.7 of this subchapter, of such Federal association and (2) of the time of such taking of possession; and such statement shall be conclusive evidence of such taking of possession and of the time of such taking of possession, and

(c) In the event one of the grounds for the appointment of the conservator is that set forth in § 147.1 (1) of this subchapter, post a notice in substantially the following form on the door of the home office of such association:

________________ Federal Savings and Loan Association ________________, ________________, ________________, is in the possession and charge of the undersigned as conservator under appointment by the Federal Home Loan Bank Board.

____
(Conservator)

____
(Date)

§ 148.2 *Powers and duties of conservator.* The conservator, subject to the direction and supervision of the Director, shall, after taking possession, pursuant to § 147.7 of this subchapter, take such action as may be necessary to conserve the assets of the association pending further disposition of its affairs. The term "Director", when used in this part shall mean the Director and any Associate or Assistant Director of the Division of Supervision of the Board. The conservator shall forthwith in his name, in the name of the association, in the name of both, or otherwise, collect all obligations and money due the association, and in his name, in the name of the association, in the name of both, or otherwise:

(a) May do all things desirable or expedient in his discretion to carry on the business of the association to an extent consistent with his appointment and to preserve and conserve the assets and property of every nature of such association, but shall not declare, credit, pay or distribute dividends on its savings accounts except with the approval of the Board or of the Director;

(b) May exercise all the rights and powers of such association, including, without any limitation on the generality of the foregoing, any rights and powers under any mortgage, deed of trust, chose in action, option, collateral note, contract, judgment or decree, share or certificate of share of stock, or instrument of any nature;

(c) May, with the approval of the Board or of the Director, pay off and discharge any taxes, assessments, liens, claims, or charges of any nature against the association or the conservator or any assets or property of any nature of such association;

(d) May pay out and expend such sums as he shall deem necessary or advisable:

(1) For or in connection with the preservation, maintenance, conservation or protection of any asset or property of such association, or

(2) With the approval of the Board or the Director, for or in connection with the remodeling, repair, rehabilitation or improvement not necessary for such preservation, maintenance, conservation or protection of any asset or property of such association;

(e) May, with the approval of the Board or the Director,

(1) Pay out and expend such sums as he shall deem necessary or advisable for or in connection with the preservation, maintenance, conservation or protection of, or

(2) Pay off and discharge any taxes, assessments, liens, claims or charges of any nature against, any asset or property of any nature on which the association or conservator has a lien by way of mortgage, deed of trust, pledge or otherwise, or in which the association or conservator has an interest of value of any nature;

(f) May, under the direction and supervision of the General Counsel of the Board, institute, prosecute, maintain, defend, intervene, and otherwise participate in any and all actions, suits or other legal proceedings by and against the conservator or association or in which the conservator, the association, or its creditors or members, or any of them, shall have an interest, and in every way to represent such association, its members and creditors:

(g) (1) May, with the approval of the Director, employ such assistants and employees as he may deem necessary for the proper administration of the conservatorship, and shall by bond cover all such assistants and employees in form satisfactory to such conservator and to the said Director, the cost of the same and the cost of the conservator's bond to be paid out of the assets of the association in the possession of the conservator; and

(2) Shall employ any attorney or attorneys designated by the General Counsel of the Board, in connection with litigation or otherwise to give legal advice and assistance, for the conservatorship generally or in particular instances, and pay retainers and compensation of such attorney or attorneys, together with all expenses, including, but not limited to, the costs and expenses of any litigation, as approved by said General Counsel, out of the assets of the association;

(h) May execute, acknowledge, and deliver any and all deeds, contracts, leases, assignments, bills of sale, releases, extensions, satisfactions, and other instruments necessary or proper for any purposes, including, without limitation on the generality of the foregoing, the effectuation or termination of any sale, lease or transfer of real, personal or mixed property. Any deed or other instrument executed pursuant to the authority hereby given shall be as valid and effectual for all purposes as if the same had been executed, as the act and deed of the association or otherwise, by the officers of such association by authority of its board of directors;

(i) The conservator shall close such bank accounts and open such additional bank accounts for the association as he shall deem advisable subject to the approval of the Director, but no account shall be retained or opened in a bank which is not insured by the Federal Deposit Insurance Corporation or in any Federal Home Loan Bank except with the approval of the Board.

(j) (1) May, with the approval of the Board or the Director, sell for cash any mortgage, deed of trust, chose in action, bond, note, contract, judgment or decree, or share or certificate of share of stock or debt, owing to such association, at not less than the actual amount owing the association thereon or the face or par value thereof, and

(2) May, with the approval of the Board, or on terms and conditions approved by the Board, sell for cash or on terms, or exchange or otherwise dispose of, at less than the amount owing the association thereon or the face or par value thereof, in whole or in part, any mortgage, deed of trust, chose in action, bond, note, contract, judgment or decree, share or certificate of share of stock or debt, owing to such association;

(k) (1) May lease on a month to month basis, or for a term of not to exceed one year, and

(2) May, with the approval of the Board, or on terms and conditions approved by the Board, sell for cash or on terms, lease for a period of more than one year, exchange or otherwise dispose of, in whole or in part, any or all of the assets and property of the association, real, personal, and mixed, tangible and intangible, of any nature;

(l) May, with the approval of the Board or the Director, or on terms and conditions approved by the Board or the Director, surrender, abandon, and release any choses in action, or other assets or property of any nature, whether the subject of pending litigation or not, and reject or repudiate any lease or contract which he considers burdensome;

(m) May, with the approval of the Board, or on terms and conditions approved by the Board, settle, compromise, or obtain the release of, for cash or other considerations, claims and demands against such association or the conservator;

(n) May, with the approval of the Board, or on terms and conditions approved by the Board, settle, compromise, or release, for cash or other considerations, claims and demands in favor of the association or the conservator;

(o) May, with the approval of the Board or the Director, borrow money in any amount and from any source and in any manner, and execute, acknowledge and deliver notes, certificates, and other evidence of indebtedness therefor and secure the repayment thereof by the mortgage, pledge, assignment in trust or hypothecation of any or all of the property, whether real, personal, or mixed, of such association, and such borrowing may be for any purpose, including, without any limitation on the generality of the foregoing, protecting or preserving the assets in his possession, declaring and paying dividends to members and creditors, providing for the expense of administration, or aiding in the reopening or reorganization of such association;

(p) May pay out of the assets of the conservatorship all costs and expenses of the conservatorship and all costs of carrying out or exercising his rights, powers, privileges and duties as conservator, all as determined by him, except as otherwise provided herein; and

(q) May do such things, and have such rights, powers, privileges, immunities, and duties, whether or not otherwise granted in these rules and regulations, as shall be authorized, directed, conferred, or imposed from time to time in specific cases by order of the Board or by amendment of these rules and regulations.

For the purposes of this section, assets and property, without limitation on the generality thereof and including any mortgage, deed of trust, chose in action, bond, note, contract, judgment or decree, share or certificate of share of stock, or debt of the association, shall include any such asset or property of the conservator.

§ 148.3 *Creditors.* The conservator may, after certification by the conservator to the Board that the assets of the association will be sufficient to meet all creditor obligations and that the condition of the association justifies, out of the assets in his possession,

(a) With the approval of the Director, make disbursements which the association was obligated to make on loan commitments and other valid contracts,

(b) With the approval of the Director, pay salaries due officers or employees of the association, permit the payment of outstanding checks given in connection with valid creditor obligations, and pay valid creditor obligations, or, in the absence of such certification or approval, may, out of the assets of the association in his possession, pay creditor obligations and make disbursements which the association was obligated to make on loan commitments, to the extent determined by the Director to be compatible with the condition of the association and the proper conduct of its affairs.

§ 148.4 *Share interests.* The conservator shall not accept any payments on or purchases, or make any repurchases, of share accounts, unless the Board shall otherwise direct by order, which order, or orders, shall be posted in a conspicuous place in the principal office of the conservator for conducting the affairs of the association, and such payments or purchases shall be accepted, or such repurchases made, only to the extent and in the manner, and with segregation to the extent, that the same, if any, may be directed in such order or orders.

§ 148.5 *Examination, inventories, reports, costs and expenses*—(a) *Inventory.* As soon as practicable after taking possession, the conservator shall make an inventory of the assets of such association as of the date of such taking possession, showing the value as carried on the books of the association, and the security therefor, if any, in whatever form the same shall exist, with a brief description of each such asset and such security. Such assets may be listed in such groups or classes as shall, to the satisfaction of the Director, afford full information as to their character and book value, and the inventory shall include a record of the creditor and share liabilities of the association. Two copies of such inventory shall promptly be filed with the Secretary to the Board, one copy with the Director, and one copy shall during the conservatorship be retained in the principal office of the association.

(b) *Examinations and audits.* Each Federal association for which a conservator has been appointed may be examined and/or audited (with appraisals when deemed advisable by the Board) by the Division of Examinations of the Board as directed by the Board. The cost, as determined by the Board, of examinations including office analysis thereof, audits, and any appraisals made in connection therewith, shall be paid from the assets of the association unless otherwise ordered by the Board.

(c) *Forms and reports.* The conservator shall follow such accounting practices as may, from time to time, be prescribed by the Director. The conservator shall make such reports as may be required by the Board or the Director.

§ 148.6 *Final discharge and release of conservator*—(a) *Final report.* At such time as the conservator be relieved of his duties, the conservator shall file with the Board a detailed report in form satisfactory to the Board.

(b) *Final discharge.* Unless otherwise directed by the Board, upon the completion of the duties of the conservator or at such time as the conservator shall be otherwise relieved of his duties, an examination and audit may be directed by the Board in connection with the report of the conservator hereinbefore required. The accounts of the conservator shall be approved or disapproved by the Board, and, if approved, the conservator shall thereupon be given a complete and final release.

§148.7 *Inspection of reports.* All inventories, statements and reports of the conservator shall be in at least four copies unless otherwise directed by the Board or the Director. Two copies shall be filed with the Secretary to the Board, one copy with the Director, and each of the inventories, statements, and reports shall constitute permanent records of each conservatorship open for inspection at such times and on such conditions as may be from time to time directed by the Board or, in the absence of such directions, whenever the office of the Secretary to the Board shall be open for business.

§ 148.8 *Delegation by conservator.* The conservator may delegate to such persons as he may designate any or all of the powers and authorities vested in the conservator by or under §§ 148.2, 148.3 and 148.4.

PART 149—POWERS OF RECEIVER AND CONDUCT OF RECEIVERSHIPS

Sec.
149.1 Procedure upon taking possession.
149.2 Disposition.
149.3 Powers and duties of receiver.
149.4 Creditor claims.
149.5 Share interest claims.
149.6 Inventories, examinations, and reports.
149.7 Final discharge and release of receiver.
149.8 Inspection of reports.

AUTHORITY: §§ 149.1 to 149.8 issued under sec. 17, 47 Stat. 736, as amended; 12 U. S. C. 1437. Interprets or applies sec. 5, 48 Stat. 132, as amended; 12 U. S. C. 1464.

§ 149.1 *Procedure upon taking possession.* Upon taking possession, pursuant to § 147.7 of this subchapter, the receiver shall forthwith:

(a) Post a notice in substantially the following form on the door of the home office of such association:

--------------- Federal Savings and Loan Association ----------, ----------, ----------, is in the hands of the Federal Savings and Loan Insurance Corporation as receiver under appointment by the Federal Home Loan Bank Board.

FEDERAL SAVINGS AND LOAN
INSURANCE CORPORATION
AS RECEIVER,

By --------------------------
(Title)

(Date) -------------

(b) Notify, by written notice served personally or by registered mail or telegraph, all banks, trust companies, and all other individuals, partnerships, corporations and associations known to it to be holding or in possession of any assets of such associations; and

(c) File with the Secretary to the Board a statement (1) that it has taken possession, pursuant to § 147.7 of this subchapter, of such Federal association, and (2) of the posting and time of posting of the notice pursuant to the provisions of paragraph (a) of this section, together with a copy of such notice; and such statement shall be conclusive evidence of the posting and time of posting of such notice. Notice of appointment of a receiver or conservator shall forthwith be filed for publication in the FEDERAL REGISTER.

§ 149.2 *Disposition.* Unless the Board shall otherwise order, the receiver shall, within 20 days of its appointment, recommend to the Board a plan for the reorganization, consolidation, merger, liquidation or other disposition of the association. Such recommended plan may provide that the receiver as such may (a) take over the assets of and operate the association, (b) take such action as may be necessary to put it in a sound and solvent condition, (c) merge it with another insured institution, (d) organize a new Federal savings and loan association to take over its assets, or (e) proceed to liquidate its assets in an orderly manner. The Board shall thereupon adopt a plan which may provide for the reorganization, consolidation, merger, liquidation or other disposition of the association, which plan, including any amendments thereto and substitutions therefor ordered at any time by the Board, shall be carried into effect by the receiver. The facilities of the Board may be availed of in carrying out the plan.

§ 149.3 *Powers and duties of receiver.* The receiver, after posting notice pursuant to § 149.1, shall, in its name, in the name of the association, in the name of both, or otherwise, collect all obligations and money due such association, and may, in its name, in the name of the association, in the name of both, or otherwise:

(a) Do all things desirable or expedient in its discretion to carry on the business of such association to an extent consistent with its appointment and to preserve and conserve the assets and property of every nature of such association, but shall not declare, credit, pay or distribute dividends on its savings accounts except with the approval of the Board or of the Director;

(b) Exercise all the rights and powers of such association, including, without any limitation on the generality of the foregoing, any rights and powers under any mortgage, deed of trust, chose in action, option, collateral note, contract, judgment or decree, share or certificate of share of stock, or instrument of any nature;

(c) Pay off and discharge any taxes, assessments, liens, claims, or charges of any nature against the association or the receiver or any asset or property of any nature of such association;

(d) Pay out and expend such sums as it shall deem necessary or advisable for or in connection with the preservation, maintenance, conservation, protection, remodeling, repair, rehabilitation, or improvement of any asset or property of any nature of such association;

(e) Pay out and expend such sums as it shall deem necessary or advisable for or in connection with the preservation, maintenance, conservation, or protection of, or pay off and discharge any taxes, assessments, liens, claims, or charges of any nature against, any asset or property of any nature on which the association or the receiver has a lien by way of mortgage, deed of trust, pledge or otherwise, or in which the association or receiver has an interest of value of any nature;

(f) Institute, prosecute, maintain, defend, intervene, and otherwise participate in any and all actions, suits, or other legal proceedings by and against the receiver or association or in which the receiver, the association, or its creditors or members, or any of them, shall have an interest, and in every way to represent such association, its members and creditors;

(g) Employ any attorney or attorneys designated by, or acceptable to, the General Counsel of the Federal Home Loan Bank Board in connection with litigation or otherwise to give legal advice and assistance, for the receivership generally or in particular instances, and pay retainers and compensation of such attorney or attorneys, together with all expenses, including, but not limited to, the costs and expenses of any litigation, as approved by said General Counsel, out of the assets of the association;

(h) Execute, acknowledge, and deliver any and all deeds, contracts, leases, assignments, bills of sale, releases, extensions, satisfactions, and other instruments necessary or proper for any purposes, including, without any limitation on the generality of the foregoing, the effectuation or termination of any sale, lease or transfer of real, personal or mixed property, or that shall be necessary or proper to liquidate or carry on the business of such association. Any deed or other instrument executed pursuant to the authority hereby given shall be as valid and effectual for all purposes as if the same had been executed as the act and deed of the association or otherwise, by the officers of such association by authority of its board of directors;

(i) Deposit the moneys and funds in any bank or banks insured by the Federal Deposit Insurance Corporation or in any Federal Home Loan Bank, or any other banks or other depositories approved for such purposes by the Board. All depository bank accounts of the receiver shall be carried as follows: "Federal Savings and Loan Insurance Corporation, Receiver for ---------------------------- Association."

(j) Sell for cash or on terms, exchange, or otherwise dispose of, in whole or in part, any mortgage, deed of trust, chose in action, bond, note, contract, judgment or decree, share or certificate of share of stock or debt, owing to such association;

(k) Sell for cash or on terms, exchange or otherwise dispose of, in whole or in part, any or all of the assets and property of the association, real, personal, and mixed, tangible and intangible, of any nature;

(l) Surrender, abandon, and release any choses in action, or other assets or property of any nature, whether the subject of pending litigation or not, and reject or repudiate any lease or contract which it considers burdensome;

(m) Settle, compromise, or obtain the release of, for cash or other considerations, claims and demands against such association or the receiver;

(n) Settle, compromise, or release, for cash or other considerations, claims and demands in favor of the association or the receiver;

(o) With the approval of the Board and on terms and conditions approved by the Board, borrow money in any amount and from any source and in any manner, and execute, acknowledge and deliver notes, certificates, and other evidence of indebtedness therefor and secure the repayment thereof by the mortgage, pledge, assignment in trust or hypothecation of any or all of the property, whether real, personal, or mixed, of such association, and such borrowing may be for any purpose, including, without any limitation on the generality of the foregoing, facilitating liquidation, carrying on the business of such association, protecting or preserving the assets in its possession, declaring and paying dividends to members and creditors, providing for the expense of administration and liquidation, or aiding in the reopening or reorganization of such association:

(p) Pay out of the assets of the receivership all costs and expenses of the receivership and all costs of carrying out or exercising its rights, powers, privileges and duties as receiver, all as determined by it, except as otherwise provided in this section; and

(q) Do such things, and have such rights, powers, privileges, immunities, and duties, whether or not otherwise granted in the rules and regulations in this chapter, as shall be authorized, directed, conferred, or imposed from time to time in specific cases by order of the Board, or by amendment of the rules and regulations in this chapter. For the purposes of this section, assets and property, without limitation on the generality thereof and including any mortgage, deed of trust, chose in action, bond, note, contract, judgment or decree, share or certificate of share of stock, or debt of the association, shall include any such asset or property of the receiver.

§ 149.4 *Creditor claims.* (a) In the event the Board shall adopt a plan providing for the liquidation of the association, as provided in § 149.2, the receiver shall promptly publish, in a newspaper printed in the English language and of general circulation in the city or county in which the home office of such Federal association is located, a notice to all creditors of such Federal association to present their claims with proof thereof to such receiver on or before a date specified in such notice. The date specified in such notice shall be at least 90 days after the date of the first publication of such notice (Sundays and holidays included). Such notice shall be similarly published on dates approximately one month and two months respectively after the date of such first publication. Claims not filed within such period shall be disallowed, except as they may thereafter be approved by the Board for payment in whole or in part out of the assets of said Federal association remaining undistributed at the time of such approval. The receiver shall mail a similar notice to any creditor, shown to be such on the books of the association, at the last address of such creditor as the same shall appear on such books.

(b) Any claim proved to the satisfaction of the receiver shall be allowed by the receiver except as provided in paragraph (a) of this section. The receiver may disallow in whole or in part or reject in whole or in part any creditor claim or claim of security, preference or priority not proved to its satisfaction, and notice of such disallowance or rejection together with the reason therefor shall be served by the receiver upon the claimant. The mailing of notice of such disallowance or rejection to the last known address of any claimant appearing on the books or the proof of claim shall be deemed sufficient for the purposes hereof. Unless such claimant shall within 30 days after the mailing of such notice (Sundays and holidays included) file with the Board written request for payment regardless of such disallowance or rejection by the receiver, such disallowance or rejection shall be final except as the Board may otherwise determine in its discretion.

(c) Upon the expiration of the time fixed for the presentation of creditor claims by the notice provided for in paragraph (a) of this section, the receiver shall cause to be filed with the Board a full and complete list of such claims presented. Such list shall indicate the character of each claim therein listed and whether or not allowed by the receiver. At such other date or dates as may be ordered by the Board or determined by the receiver, a list of claims presented before such date shall be filed with the Board.

(d) Allowed creditor claims, and creditor claims approved for payment by the Board regardless of disallowance or non-allowance by the receiver, shall be paid by the receiver, from time to time, to the extent that funds are available, in such manner and amount as may be directed by the Board.

§ 149.5 *Share interest claims.* (a) In the event the Board shall adopt a plan providing for the liquidation of the association, as provided in § 149.2, the receiver shall, within six months from the date of the adoption of such plan, publish, in a newspaper printed in the English language and of general circulation in the city or county in which the home office of such Federal association is located, a notice to all shareholders of such Federal association to present their sworn proofs of claim of ownership thereof to such receiver on or before a date specified in such notice. The date specified in such notice shall be 3 years after the date of the appointment of the receiver. Such notice shall urge that claims of ownership be presented promptly and shall be similarly published on dates approximately 1 year and 2 years respectively after the date of such first publication. Claims of ownership not filed within the period stated in the notice shall be disallowed, except as they may thereafter be approved by the Board for payment in whole or in part out of the assets of said Federal association remaining undistributed at the time of such approval. The receiver shall mail a similar notice to any shareholder, shown to be such on the books of the association in the possession of the receiver, at the last address of such shareholder as the same shall appear on such books: *Provided, however,* That such notice need not be mailed to the holder of a share account that has been surrendered and transferred to, or is in the process of being surrendered and transferred to, the Federal Savings and Loan Insurance Corporation. At the time of the declaration of the first liquidating dividend, the receiver shall credit to a special reserve the proportionate shares of such liquidating dividend otherwise payable to the holders of unclaimed share accounts shown on the books of the association which appear to be outstanding and valid, and similar credits shall from time to time be made for any subsequent liquidating dividends as the same may be declared before the date specified in the notice provided for in this paragraph. The final liquidating dividend to shareholders whose claims of ownership have been allowed may include any sums held in such accounts or any portion thereof, but such dividend shall in no event be paid before the date specified in the notice provided in this paragraph.

(b) Any share ownership proved to the satisfaction of the receiver shall be allowed by the receiver. The receiver may disallow in whole or in part any claim of share interest not proved to its satisfaction, and notice of such disallowance together with reason therefor shall be served by the receiver upon the claimant. The mailing of notice of such disallowance to the last known address of any claimant appearing on the books or proof of claim shall be deemed sufficient for the purposes hereof. Unless such claimant shall file with the Board written request for payment regardless of such disallowance or rejection by the receiver within 30 days after the mailing of such notice (Sundays and holidays included), such disallowance or rejection shall be final except as the Board shall otherwise determine in its discretion.

(c) Upon the expiration of the time fixed for the presentation of claims of share interest by the notice provided for in paragraph (a) of this section, the receiver shall cause to be filed with the Board a full and complete list of such claims presented. Such list shall indicate the character of each claim therein listed and whether or not allowed by the receiver. At such other date or dates as may be ordered by the Board or determined by the receiver, a list of claims presented before such date shall be filed with the Board.

(d) Upon the payment of insurance to the holder of a share interest, the transfer to the Federal Savings and Loan Insurance Corporation of the insured account, and the subrogation of the Federal Savings and Loan Insurance Corporation with respect to such insured account to the extent provided by law, shall be noted on the books of the receivership.

(e) Allowed claims of share interest to which the Federal Savings and Loan Insurance Corporation has become subrogated; uninsured claims of share interest allowed by the receiver, and claims of share interest approved for payment by the Board regardless of disallowance or nonallowance by the receiver, shall be paid by the receiver in liquidating dividends declared from time to time by the Board, to the extent that funds are available, in such manner and amounts as may be directed by the Board.

§ 149.6 *Inventories, examinations, and reports*—(a) *Inventory.* As soon as practicable after taking possession, the receiver shall make an inventory of the assets of such association as of the date of such taking possession, showing the value as carried on the books of the association, and the security therefor, if any, in whatever form the same shall exist, with a brief description of each such asset and such security. Such assets may be listed in such groups or classes as shall, to the satisfaction of the Board, afford full information as to their character and book value, and the receiver shall include a record of the creditor and share liabilities of the association. One copy of such inventory shall promptly be filed with the Secretary to the Board, one copy with the Federal Savings and Loan Insurance Corporation, and one copy shall be retained in the principal office for liquidation of the association, so long as such office is maintained.

(b) *Examinations and audits.* Each Federal association for which a receiver has been appointed shall be examined and audited (with appraisals when deemed advisable by the Board) at least annually by the Examining Division of the Board or as otherwise directed by the Board. The cost, as determined by the Board, of examinations, including office analysis thereof, audits, and any appraisals made in connection therewith, shall be paid from the assets of the association.

(c) *Forms and reports.* The receiver may, from time to time, prescribe the accounting practices to be followed. The receiver shall make an annual report of its affairs as of June 30 of each year to the Board on forms prescribed by the Board or the receiver, and such other reports as may be from time to time required by the Board or the receiver and shall accompany each recommendation for the declaration and payment of a liquidating dividend with a report showing the available assets. One copy of the reports required in this section shall be filed with the Secretary to the Board, one copy shall be retained by the Federal Savings and Loan Insurance Corporation, and one copy shall be retained in the principal office for the liquidation of the association, so long as such is maintained.

§ 149.7 *Final discharge and release of receiver*—(a) *Final report.* At such time as the receiver shall recommend a final distribution of the assets or at such time as the receiver shall be otherwise relieved of its duties, the receiver shall file with the Board a detailed report in form satisfactory to the Board.

(b) *Final discharge.* Unless otherwise directed by the Board, upon the final liquidation of the receivership, or the completion of the duties of the receiver or at such time as the receiver shall be otherwise relieved of its duties, an examination and audit of the association in receivership shall be conducted. The accounts of the receiver shall thereupon be approved or disapproved, and, if approved, the receiver shall thereupon be given a complete and final discharge and release.

§ 149.8 *Inspection of reports.* All inventories, statements and reports of the receiver shall be in at least as many copies as required by the regulations in this chapter or as shall be otherwise directed by the Board. One copy shall be filed with the Board and a duplicate shall be filed with the Federal Savings and Loan Insurance Corporation, and each of the inventories, statements, and reports shall constitute permanent records of each liquidation open for inspection at such times and on such conditions as may be from time to time directed by the Board or, in the absence of such directions, whenever the office of the Secretary to the Board shall be open for business.

Resolved further, That these amendments should be made effective as soon as possible, as any delay in action authorized by these amendments to § 142.3 of Part 142, and Parts 147, 148 and 149 because of a later effective date will reduce the benefits to the parties affected thereby. All persons who may be affected by the issuance of these amendments have had a reasonable opportunity to prepare for the effective date thereof, or to take any other action which the issuance of these amendments may prompt. The proposed amendment to section 142.3 of Part 142 and the amendments of Parts 147, 148 and 149 were duly published February 4, 1956 (21 F. R. 813) and no persons have filed any written data or made oral arguments with respect thereto either within the time allotted or at any later date. There have been no substantial changes from the Proposed Rule published in 21 F. R. 813. In addition to the foregoing, these amendments are, essentially procedural in nature and are promulgated to carry into effect statutory amendments. Good cause is found, therefore, for issuing these amendments effective less than 30 days after publication in the FEDERAL REGISTER, as provided in section 4 of the Administrative Procedure Act (5 U. S. C. 1003).

These amendments shall be effective June 26, 1956.

By the Federal Home Loan Bank Board.

[SEAL] H. CAULSEN,
Assistant Secretary.

[F. R. Doc. 56-5034; Filed, June 25, 1956; 8:52 a. m.]

Subchapter D—Federal Savings and Loan Insurance Corporation

[No. 9718]

PART 165—TERMINATION OF INSURANCE

TERMINATION OF INSURANCE OF ACCOUNTS

JUNE 21, 1956.

Resolved that, pursuant to Part 108 of the general regulations of the Federal Home Loan Bank Board (24 CFR Part 108) and § 167.1 of the rules and regulations for insurance of accounts (24 CFR 167.1), § 165.3 of the rules and regulations for insurance of accounts (24 CFR 165.3) is hereby amended to read as follows:

§ 165.3 *Termination by the Board*—(a) *Grounds.* The grounds for termination of insurance of accounts of any insured institution shall consist of any one or more of the following:

(1) The violation by the insured institution of any of its duties as an insured institution;

(2) Continued unsafe or unsound practices by the insured institution in conducting its business; or

(3) The permitting by the insured institution, either knowingly or negligently, of any of its officers or agents to

violate any provision of any law or regulation to which such insured institution is subject.

(b) *Hearing.* In the event the Board is of the opinion that one or more of the grounds enumerated in paragraph (a) of this section exists for the termination of insurance of any insured institution, the Board will furnish to the appropriate governmental authority having supervision of such insured institution a statement with respect to such practices or violations and furnish a copy thereof to the insured institution: *Provided*, That, in the event there is no such supervisory authority over an insured institution operating under state law, such statement shall be sent directly to the insured institution. The insured institution shall have a period of 120 days, or such shorter period of time as the governmental authority having supervision of such insured institution, if any, may require, within which to correct such practice or violation. If satisfactory correction has not been effected by the insured institution within the specified period of time, the Board, if it shall determine to proceed further with the matter, will give the insured institution at least 30 days' written notice of intention to terminate its status as an insured institution; and such notice shall state the grounds for such termination and the time and place of a hearing at which the insured institution may appear and be heard. Such notice shall be served upon the insured institution in the manner provided in Part 109 of this chapter. Unless such insured institution shall appear at such hearing by duly authorized representative, it shall be deemed to have consented to the termination of its status as an insured institution. The hearing shall be conducted in the manner provided in said Part 109 and in accordance with the provisions of the Administrative Procedure Act as in force and effect at the time such hearing is held.

Resolved further, that, this amendment should be made effective as soon as possible, as any delay in action authorized by this amendment because of a later effective date will reduce the benefits to the parties affected thereby. All persons who may be affected by the issuance of this amendment of § 165.3 of Part 165 have had a reasonable opportunity to prepare for the effective date thereof, or to take any other action which this amendment may prompt. This proposed amendment of § 165.3 of Part 165 was duly published February 4, 1956 (21 F. R. 813) and no persons have filed any written data or made oral arguments with respect thereto either within the time allotted or at any later date. There have been no substantial changes from the Proposed Rule published in 21 F. R. 813. In addition to the foregoing, this amendment is, essentially procedural in nature and is promulgated to carry into effect statutory amendments. Good cause is found, therefore, for issuing this amendment, effective less than 30 days after publication in the FEDERAL REGISTER, as provided in section 4 of the Administrative Procedural Act (5 U. S. C. 1003).

(Sec. 402, 48 Stat. 1256, as amended, 12 U. S. C. 1725. Interprets or applies sec. 407, 48 Stat. 1260, as amended; 12 U. S. C. 1730)

This amendment shall be effective June 26, 1956.

By the Federal Home Loan Bank Board.

[SEAL] H. CAULSEN,
Assistant Secretary.

[F. R. Doc. 56-5035; Filed, June 25, 1956; 8:52 a. m.]

Chapter II — Federal Housing Administration, Housing and Home Finance Agency

Subchapter M—Military and Armed Services Housing Mortgage Insurance

PART 293a—ARMED SERVICES HOUSING INSURANCE; RIGHTS AND OBLIGATIONS OF THE MORTGAGEE UNDER THE INSURANCE CONTRACT

EDITORIAL NOTE: In FEDERAL REGISTER Document 56-4753, appearing at page 4231 of the issue for Friday, June 15, 1956, paragraph 2, in the third column, should read as follows:

2. In Part 293a, §§ 293a.1 to 293a.14 are designated as Subpart A—Military Personnel. The references therein to "this part" shall be deemed to mean "this subpart." A new Subpart B is added as follows:

TITLE 26—INTERNAL REVENUE, 1954

Chapter I—Internal Revenue Service, Department of the Treasury

Subchapter E—Alcohol, Tobacco, and Other Excise Taxes

[T. D. 6185]

PART 270—CIGARS AND CIGARETTES: MANUFACTURERS, IMPORTERS, AND DEALERS

OPTIONAL DAILY RETURN SYSTEM FOR TAXPAYMENT OF CIGARS

In order to prescribe provisions for an optional daily return system for taxpayment of cigars and to make miscellaneous amendments, regulations in 26 CFR (1954) Part 270 are hereby amended as follows:

PARAGRAPH 1. Section 270.64 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.64 *Liability for tax and method of payment.* The taxes imposed on cigars and cigarettes shall be determined at the time of removal of such products. The tax imposed on cigarettes shall be paid by the manufacturer or the importer by the affixture of internal revenue tax stamps to each package of such products before removal. The tax imposed on cigars shall be paid by the manufacturer by return in accordance with the provisions of Subpart L of this part and by the importer by return in accordance with the provisions of Subpart M of this part: *Provided*, That a manufacturer or an importer of cigars shall have the option, in lieu of shifting over to the payment of tax by return, of continuing to pay the tax on cigars by the affixture of internal revenue tax stamps to each package of such products before removal. Each manufacturer who intends to pay the tax on cigars by return shall submit notice of such intention to the assistant regional commissioner, at least 5 days in advance of the day on which he desires to shift over to the return system. After exercising his option to pay the tax by return, a manufacturer may not revert to the payment of such taxes by stamp.

(68A Stat. 707; 26 U. S. C. 5703)

PAR. 2. Section 270.72 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.72 *Disposal of forfeited, condemned, and abandoned cigars and cigarettes.* When in the opinion of any Federal, State, or local officer having custody of forefeited, condemned, or abandoned cigars or cigarettes, upon which the Federal tax has not been paid, the sale thereof will not bring a price equal to such tax due and payable thereon, and the expenses incident to the sale thereof, he shall not sell, nor cause to be sold, such products for consumption in the United States. Where the products are not sold, the officer may deliver them to a Federal or State hospital or institution (if they are fit for human consumption) or cause their destruction in the manner provided in § 270.155. Where such products are sold, they shall not be released by the officer having custody thereof until they are properly packaged and taxpaid, which tax shall be considered as a portion of the sales price. The tax on cigarettes shall be evidenced by the purchase from the district director of the proper internal revenue stamps and the affixture of such stamps to the packages of cigarettes. The tax on cigars may be evidenced by the purchase from the district director of the proper internal revenue stamps and the affixture of such stamps to the packages of cigars, or by the presentation to the officer having custody of the cigars of a receipt from the district director showing payment to him of the tax on the cigars. In the case of such products held by or for the Federal Government, the sale thereof shall be subject to the applicable provisions of the Regulations of the General Services Administration, Title 1, Personal Property Management.

(68A Stat. 716, 831; 26 U. S. C. 5753, 6807)

PAR. 3. Section 270.144 is amended as follows:

(A) Paragraph (a), by deletion in its entirety and insertion of a new paragraph to read as follows:

(a) *General.* All cigars and cigarettes shall, before removal, be put up by the manufacturer in packages which shall bear the stamps, class designation, and mark, as required by this subpart. Such packages shall be of such construction as will securely contain the cigars and cigarettes therein and maintain such stamps, class designation, and mark thereon: *Provided*, That cigars and cigarettes transferred to another manufacturer of such products, removed for export, furnished for consumption by employees, or used for experimental purposes, shall be exempt from the provisions of this paragraph.

(B) Paragraph (b), by deletion of the word "the" and insertion, in lieu thereof, of the word "such"; and insertion before the word "mark" of the expression "the warning of the".

PAR. 4. Section 270.146 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.146 *Mark.* Every package of cigars and cigarettes subject to tax shall, before removal, have legibly imprinted thereon, or on a label securely affixed thereto, the name and location of the manufacturer, or his permit number. Where the tax on the contents of a package is paid by the affixture of stamps thereon, the package shall also bear a warning reading "Law forbids the reuse of the Federal stamps hereon and requires the person who empties this package to destroy such stamps when the package is emptied." Where the tax on the contents of a package of cigars is payable by return, the package shall also bear the number of cigars contained in such package.

(68A Stat. 713; 26 U. S. C. 5723)

PAR. 5. Section 270.149 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.149 *Affixture of stamps.* Every manufacturer of cigars who, under § 270.64, pays the tax by stamp, and every manufacturer of cigarettes, shall, before removal subject to tax, securely affix to each package of such products one or more stamps of such proper class and denominations as will fully taxpay the contents of such package.

(68A Stat. 713; 26 U. S. C. 5723)

PAR. 6. Section 270.153 is amended, in the first sentence, by insertion of the word "only" after the word "supervision"; and is further amended by adding a third sentence to read as follows: "If the tax on cigars removed from the factory is to be paid, or has been paid, by return, and claim for allowance or refund of the tax is to be made by the manufacturer, the procedure in § 270.162a or § 270.164, as the case may be, shall be followed."

PAR. 7. Section 270.154 is amended by deletion of the third sentence and insertion, in lieu thereof, of a new sentence to read as follows: "Where the manufacturer intends to file a claim for allowance or refund of tax on the cigars or cigarettes to be reduced to materials, he shall follow the provisions of § 270.162a, § 270.164, or § 270.165, as the case may be.

PAR. 8. Section 270.162 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.162 *Claim for remission of tax liability on cigars and cigarettes.* Every loss (otherwise than by theft) or destruction, by fire, casualty, or act of God, of cigars and cigarettes before removal from the factory, or after removal for tax-exempt purposes, and which are in the possession or ownership of the manufacturer of such cigars and cigarettes, shall be reported by the manufacturer to the assistant regional commissioner and the facts of such loss or destruction shall be established to his satisfaction. Claim for remission of tax liability may be filed with the assistant regional commissioner. Such claim shall be in letter form showing the nature, date, and extent of such loss or destruction, shall set forth the reasons why such tax liability should be remitted, and shall be accompanied by evidence necessary to support the claim.

(68A Stat. 709; 26 U. S. C. 5705)

PAR. 9. A new section 270.162a to read as follows is inserted:

§ 270.162a *Claim for allowance of tax*—(a) *General.* Where cigars, after removal from the factory subject to tax payable by return, and prior to the time for payment of such tax as set forth in Subpart L, are lost (otherwise than by theft) or destroyed by fire, casualty, or act of God, or are withdrawn from the market, while in the possession or ownership of the manufacturer of such cigars, relief from the payment of such tax may be extended to the manufacturer by allowance of the tax under the provisions of paragraph (b) or (c) of this section.

(b) *Cigars lost or destroyed.* Where, under the circumstances described in paragraph (a) of this section, cigars are lost (otherwise than by theft) or destroyed by fire, casualty, or act of God, and the manufacturer desires relief from the tax on the cigars, such loss or destruction shall be reported promptly by the manufacturer to the assistant regional commissioner of the region in which the removal of the cigars from the factory took place. The manufacturer shall also file claim for allowance of the tax, in letter form, showing the nature, date, and extent of such loss or destruction, together with evidence necessary to establish the validity of the claim. The claim shall be filed by the manufacturer with his tax return, Form 2135, on which the removal of such cigars is reported. The manufacturer may take a credit or deduction, on such tax return, of the amount of tax on the cigars so lost or destroyed.

(c) *Cigars withdrawn from the market.* Where, under the circumstances described in paragraph (a) of this section, cigars are withdrawn from the market by the manufacturer because of damage by fire, casualty, or act of God, or for any other reason, but are in such condition as to permit identification of the product and determination of the tax applicable to the cigars, such cigars shall be assembled by the manufacturer (1) at his factory, if the cigars are to be returned to such factory, or (2) at a suitable place, if the cigars are to be destroyed. The manufacturer shall prepare a claim, in letter form, in triplicate, which shall include a schedule of the cigars. The manufacturer shall request the assistant regional commissioner, for the region in which the cigars are assembled, to detail a revenue officer to inspect the cigars, verify the schedule thereof, and supervise the receipt of the cigars into the factory or the destruction, as the case may be. The revenue officer shall execute an appropriate certificate on all copies of the claim to show the disposition of the cigars, return the original and one copy to the manufacturer, and submit the other copy to the assistant regional commissioner. The manufacturer shall file the original copy of the claim for allowance of the tax with his tax return, Form 2135, on which the removal of the cigars is reported, and retain the copy for his records. The manufacturer may take a credit or deduction, on such tax return, of the amount of tax on the cigars so withdrawn from the market.

(68A Stat. 709; 26 U. S. C. 5705)

PAR. 10. Section 270.163 is amended by deletion of the expression ", in duplicate," from the first sentence.

PAR. 11. Section 270.164 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.164 *Claim for refund of tax*—(a) *General.* The tax paid on cigars by return or upon an assessment, or cigarettes upon an assessment, may be refunded to the person who paid the tax, where such tax has been paid in error. The tax paid by return on cigars which are withdrawn from the market by the manufacturer, or are lost (otherwise than by theft) or destroyed, by fire, casualty, or act of God, while in the possession or ownership of the manufacturer, may be refunded to the manufacturer. To obtain refund of tax under this section, claim for refund, Form 843, shall be filed within three years from the date of payment of the tax.

(b) *Claim based on error or on complete loss or destruction.* A claim, under the circumstances described in paragraph (a) of this section, which is based on taxpayment in error, or on complete loss or destruction of cigars or cigarettes, shall be filed with the assistant regional commissioner for the region in which the tax was paid, and the claim shall be supported by such evidence necessary to establish to the satisfaction of the assistant regional commissioner that the claim is valid.

(c) *Claim based on cigars damaged or withdrawn from the market.* Where, under the circumstances described in paragraph (a) of this section, cigars on which the tax has been paid by return are withdrawn from the market by the manufacturer because of damage by fire, casualty, or act of God, or for any other reason, but are in such condition as to permit identification of the product and determination of the tax paid, such cigars shall be assembled by the manufacturer (1) at his factory, if the cigars are to be returned to such factory, or (2) at a suitable place, if the cigars are to be destroyed, or exported with drawback of tax. The manufacturer shall prepare a schedule, in letter form, in duplicate, of such cigars. The manufacturer shall request the assistant regional commissioner, for the region in which the cigars are assembled, to detail a revenue officer to inspect the cigars, verify the schedule thereof, and supervise the receipt of the cigars into the factory or the destruction, as the case may be. The revenue officer shall execute an appropriate certificate on both copies of the schedule of cigars to show the disposition thereof, return one copy to the manufacturer for his records, and submit the other copy to the assistant regional commissioner to be associated with the manufacturer's claim. The manufacturer shall file his claim with the assistant regional commissioner for the region in which the cigars were destroyed or returned to the factory. Where such cigars are to be exported with drawback of tax, the manufacturer shall comply with the provisions in 26 CFR (1954) Part 290 relating to drawback of tax.

(68A Stat. 709; 26 U. S. C. 5705)

PAR. 12. Section 270.165 is amended as follows:

(A) Paragraph (a), by deletion of the expression ", in duplicate," from the second sentence.

(B) Paragraph (b), by deletion of the expression ", in duplicate," from the second sentence.

PAR. 13. Section 270.181 is amended by deletion of the expression "1939" and insertion, in lieu thereof, of the expression "1954".

PAR. 14. Section 270.190 is amended by deletion of paragraph (a) in its entirety and insertion of a new paragraph to read as follows:

(a) *General.* All cigars and cigarettes shall, before removal, be put up by the importer in packages which shall bear the stamps, class designation, and mark, as required by this subpart. Such packages shall be of such construction as will securely contain the cigars and cigarettes therein and maintain such stamps, class designation, and mark thereon.

PAR. 15. A new § 270.191a to read as follows is inserted:

§ 270.191a *Mark.* Every package of cigars on which tax is paid by return shall, before removal, have legibly imprinted thereon, or on a label securely affixed thereto, the number of cigars contained in such package.

(68A Stat. 713; 26 U. S. C. 5723)

PAR. 16. Section 270.193 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.193 *Affixture of stamps.* Every importer of cigars who, under section 270.64, pays the tax by stamp, and every importer of cigarettes, shall, before removal subject to tax, securely affix to each package of such products one or more stamps of such proper class and denominations as will fully taxpay the contents of such package.

(68A Stat. 713; 26 U. S. C. 5723)

PAR. 17. Section 270.197 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.197 *Claim for refund of tax*—(a) *General.* The tax paid on cigars by return or upon an assessment, or cigarettes upon an assessment, may be refunded to the person who paid the tax, where such tax has been paid in error. The tax paid by return on cigars which are withdrawn from the market by the importer, or are lost (otherwise than by theft) or destroyed, by fire, casualty, or act of God, while in the possession or ownership of the importer, may be refunded to the importer. To obtain refund of tax under this section, claim for refund, Form 843, shall be filed within three years from the date of payment of the tax.

(b) *Claim based on error or on complete loss or destruction.* A claim, under the circumstances described in paragraph (a) of this section, which is based on taxpayment in error, or on complete loss or destruction of cigars or cigarettes, shall be filed with the assistant regional commissioner, for the region in which the tax was paid, and the claim shall be supported by such evidence necessary to establish to the satisfaction of the assistant regional commissioner that the claim is valid.

(c) *Claim based on cigars damaged or withdrawn from the market.* Where, under the circumstances described in paragraph (a) of this section, cigars on which the tax has been paid by return are withdrawn from the market by the importer because of damage by fire, casualty, or act of God, or for any other reason, but are in such condition as to permit identification of the product and determination of the tax paid, such cigars may be taken into a domestic factory, repacked by the importer, exported with drawback of tax, or destroyed. If the cigars are to be taken into a factory, they shall be assembled at the factory. If they are to be repacked by the importer or are to be destroyed, in connection with a claim for refund, they shall be assembled in a suitable place. Where such cigars are to be taken into a factory, repacked, or destroyed, the importer shall prepare a schedule, in letter form, in duplicate, of the cigars. The importer shall request the assistant regional commissioner, for the region in which the cigars are assembled, to detail a revenue officer to inspect the cigars, verify the schedule thereof, and supervise the receipt of the cigars into the factory, the repacking, or the destruction, as the case may be. The revenue officer shall execute an appropriate certificate on both copies of the schedule of cigars to show the disposition thereof, return one copy to the importer for his records, and submit the other copy to the assistant regional commissioner to be associated with the importer's claim. The importer shall file his claim with the assistant regional commissioner for the region in which the cigars were destroyed or taken into a domestic factory. Where such cigars are to be exported with drawback of tax, the importer shall comply with the provisions of 26 CFR (1954) Part 290 relating to drawback of tax.

(68A Stat. 709; 26 U. S. C. 5705)

PAR. 18. Section 270.198 is amended as follows:

(A) Paragraph (a), by deletion of the expression ", in duplicate," from the second sentence.

(B) Paragraph (b), by deletion of the expression ", in duplicate," from the second sentence.

PAR. 19. A new § 270.199 to read as follows is inserted:

§ 270.199 *Cigars manufactured in customs bonded manufacturing warehouses.* The manufacture of cigars in customs bonded manufacturing warehouses, class 6, is governed by customs regulations. The removal of cigars from such warehouses is governed by customs regulations and applicable internal revenue regulations. Sections 270.190 and 270.191 shall apply to all cigars removed from such a warehouse for consumption in the United States. Where the tax on such cigars removed is paid by means of stamps, §§ 270.192 and 270.193 shall apply, but where the tax is to be paid by return, §§ 270.191a, 270.220, 270.221, and 270.222 shall apply: *Provided,* That the proprietor of such warehouse who intends to pay the tax on cigars by return shall file with the assistant regional commissioner a bond, Form 2100, appropriately modified, in accordance with the provisions of Subpart G.

(19 U. S. C. 1311)

PAR. 20. Section 270.210 is amended by deletion in its entirety and insertion of a new section to read as follows:

§ 270.210 *Purchase, receipt, possession, or sale of cigars and cigarettes.* The restrictions relating to the purchase, receipt, possession, sale, and offering for sale of cigars and cigarettes are set forth in section 5751, I. R. C.

PAR. 21. Section 270.212 is amended by deletion of the expression "packed and stamped by the manufacturers of such products" from the first sentence and insertion, in lieu thereof, of the expression "put up in packages bearing the stamps, class designation, and mark, as required by this part"; and is further amended by insertion of the expression "on the package, as" before the word "required" in the fourth sentence.

PAR. 22. A new Subpart L, to read as follows, is added:

SUBPART L—PAYMENT OF TAX BY RETURN ON CIGARS BY MANUFACTURERS

Sec.

270.220 Return.
270.221 Deferment of return where tax liability is less than $100.
270.222 Remittance with return.
270.223 Modification of records.
270.224 Record of removals subject to tax.

AUTHORITY: §§ 270.220 to 270.224 issued under sec. 7805, 68A Stat. 917; 26 U. S. C. 7805. Statutory provisions interpreted or applied are cited to text in parentheses.

§ 270.220 *Return.* Every manufacturer of cigars who pays the tax on cigars by return shall, except as provided in section 270.221, file a tax return, Form 2135, with the district director for each day on which cigars are removed subject to tax. The manufacturer shall file such tax return, with remittance, covering the cigars removed, not later than the close of the business day next succeeding that on which the cigars were removed: *Provided,* That where the manufacturer has deposited with the district director an additional remittance equal to, or greater than, the maximum tax liability to be incurred during any one business day, the tax return may be filed not later than the close of the second business day next succeeding the day on which the cigars were removed. If the tax liability for any one business day exceeds the additional remittance deposited, a return covering such liability filed later than the close of the business day next succeeding that on which the cigars were removed will not be considered as having been timely filed, and further, the manufacturer will not be permitted to continue deferring the filing of his returns to the second business day unless the amount of the deposit has been appropriately increased. In no event will the filing of the return be delayed for more than one additional day because of the advance deposit: *And provided further*, That when the last day for filing a tax return with remittance falls on Saturday or Sunday, or on a legal holiday (of the particular State or of the District of Columbia wherein the return is required to be filed), the performance of such acts shall be considered timely if they are performed on the next succeeding day which is not a Saturday, Sunday, or such legal holiday: *And provided further*, That where the return and remittance are delivered by United States mail to the office of the district director, the official postmark of the United States Post Office stamped on the cover in which the return and remittance were mailed shall be deemed to be the date of delivery. The manufacturer shall retain the receipted copy of each tax return, transmitted to him by the district director, for two years following the close of the year in which such return was filed and it shall be made available for inspection by any revenue officer upon his request.

(68A Stat. 707, 896; 26 U. S. C. 5703, 7503)

§ 270.221 *Deferment of return where tax liability is less than $100.* Notwithstanding the provisions of § 270.220 regarding the filing of tax returns daily, where the gross tax liability for any one day is less than $100, the preparation of the tax return and the payment of the tax due may be deferred until the day the aggregate tax liability reaches $100, when the tax return on Form 2135 accompanied by remittance of the aggregate tax, including the tax for that day, shall be filed before the close of business on the next succeeding business day: *Provided*, That, although any such aggregate tax liability is less than $100 at the close of the last business day of a calendar month, Form 2135, to cover such tax liability, shall be prepared and filed with remittance before the close of the first business day of the following month.

(68A Stat. 707; 26 U. S. C. 5703)

§ 270.222 *Remittance with return.* The tax on cigars shall be paid by remittance to the district director with the tax return. In paying the tax, a fractional part of a cent shall be disregarded unless it amounts to one-half cent or more, in which case it shall be increased to one cent.

§ 270.223 *Modification of records and reports.* Every manufacturer who pays the tax on cigars by return shall modify the record, Form 2142 or 2143, as the case may be, and the monthly report, Form 2136, by substituting the expression "removed subject to tax" for the expression "removed taxpaid." Entry shall be made in the sections of such records and reports relating to tax stamps to the effect that the tax on cigars was "payable by return."

(68A Stat. 713, 715; 26 U. S. C. 5722, 5741)

§ 270.224 *Record of removals subject to tax.* Every manufacturer who pays the tax on cigars by return shall keep a supporting record, in addition to the record required by § 270.142, of cigars removed from his factory subject to tax and shall make the appropriate entries therein at the time of removal. Such supporting record shall show, with respect to each removal, the date of removal, the name and address of the person to whom shipped or delivered, and the class and quantity of cigars. Where the manufacturer keeps, at the factory, copies of invoices or other commercial records containing the information required as to each such removal, in such orderly manner that such information may be readily ascertained therefrom by revenue officers, such copies will be considered the supporting record required by this section. Such record shall be retained for two years following the close of the year in which the cigars were removed, and shall be made available for inspection by any revenue officer upon his request.

(68A Stat 715; 26 U. S. C. 5741)

PAR. 23. A new Subpart M, to read as follows, is added:

SUBPART M—PAYMENT OF TAX BY RETURN ON CIGARS BY IMPORTERS

Sec.
270.230 Tax payable by return.
270.231 Remittance with return.

AUTHORITY: §§ 270.230 and 270.231 issued under sec. 7805, 68A Stat. 917; 26 U. S. C. 7805. Statutory provisions interpreted or applied are cited to text in parentheses.

§ 270.230 *Tax payable by return*—(a) *After importation.* Where cigars are imported into the United States on which tax has not been paid, the importer may pay tax thereon by return. The importer shall file a tax return, Form 2135, with remittance, with the district director for each removal of such cigars from customs custody subject to tax. The importer shall secure from the district director a copy of the tax return bearing acknowledgment of receipt of the remittance. Such copy shall be presented by the importer to the appropriate customs officer before such cigars are released from customs custody. When the cigars are so released, the customs officer shall endorse the copy of Form 2135 to show release of the cigars and return this copy to the importer, who shall retain such copy of the tax return for two years following the close of the year in which the return was filed and shall make it available for inspection by any revenue officer upon his request.

(b) *Prior to importation from Puerto Rico.* Where cigars produced in Puerto Rico are to be shipped to the United States, and the manufacturer desires to pay the United States internal revenue tax on such cigars by return, prior to shipment from Puerto Rico to the United States, the manufacturer shall file a tax return, Form 2135, as the importer of the cigars, with the United States Internal Revenue Service office in Puerto Rico, with remittance of the tax on the cigars covered by such tax return. The manufacturer shall secure from such office a copy of the return bearing acknowledgment of receipt of the remittance. Such copy shall be presented by the manufacturer to the representative of the Internal Revenue Service, who visits the factory for the purpose of inspecting a shipment of cigars to be sent to the United States. Such representative shall affix to the outside of the shipping cases in which the cigars are packed a certification that the United States internal revenue tax has been paid on the cigars contained in such cases. The United States Internal Revenue Service representative shall endorse the copy of the tax return, Form 2135, to show release of the cigars covered by the return, or to show the number of cigars of each class inspected and released by him for shipment to the United States where less than the total number of cigars covered by the return are so inspected and released.

(68A Stat. 707; 26 U. S. C. 5703)

§ 270.231 *Remittance with return.* The tax on imported cigars shall be paid by remittance to the district director with the tax return. In paying the tax, a fractional part of a cent shall be disregarded unless it amounts to one-half cent or more, in which case it shall be increased to one cent.

This Treasury decision is necessary to institute, on July 1, 1956, the optional daily return system for the taxpayment of cigars. Because the amendments made by this Treasury decision are of a liberalizing nature, it is found that it is unnecessary to issue this Treasury decision with notice and public procedure thereon under section 4 (a) of the Administrative Procedure Act, approved June 11, 1946, or subject to the affective date limitations of section 4 (c) of said act.

This Treasury decision shall be effective on July 1, 1956.

(Sec. 7805, 68A Stat. 917; 26 U. S. C. 7805)

[SEAL] O. GORDON DELK,
Acting Commissioner of Internal Revenue.

Approved: June 21, 1956.

DAN THROOP SMITH,
Special Assistant to the Secretary in Charge of Tax Policy.

[F. R. Doc. 56-5020; Filed, June 25, 1956; 8:49 a. m.]

TITLE 47—TELECOMMUNICATION

Chapter I—Federal Communications Commission

[Docket No. 11548; FCC 56-576]

[Rules Amdt. 31-6]

PART 31—UNIFORM SYSTEM OF ACCOUNTS, CLASS A AND CLASS B TELEPHONE COMPANIES

TELEPHONE PLANT UNDER CONSTRUCTION

1. The American Telephone and Telegraph Company, by letter dated December 27, 1954, requested the Commission's approval of two changes in its plant accounting practices, described as follows:

(a) Exclude from account 100.2, "Telephone plant under construction," the costs of jobs with authorized gross construction expenditures of less than $15,000 and charge the costs of such jobs directly to account 100.1, "Telephone plant in service," and

(b) Establish a limit of $15,000 for plant retirements below which retirements would not be recorded in the accounts in advance of physical removal of plant.

The Commission was of the opinion that effectuation of proposals of the type described above would require amendment of Part 31 of the Commission's Rules and Regulations. On the basis of information before it the Commission was of the view that $15,000 as the limit in the proposal set out in (a) above would be too great a relaxation of the present rule. The Commission, however, decided to invite comments from interested persons on a proposal that the cost of jobs with authorized gross construction expenditures of less than $10,000 (in lieu of the $15,000 suggested) may be charged directly to account 100.1, "Telephone plant in service." With respect to the proposal set out in (b), above, the Commission was of the opinion that the potential savings in record keeping were not sufficient to warrant further consideration of the proposal, in view of the risks involved in permitting delays in the accounting for retirement of plant that is no longer in service. Accordingly, no rule making proposal on this item was issued.

2. The Notice of Proposed Rule Making was adopted November 23, 1955. It was published in the FEDERAL REGISTER on November 30, 1955 (20 F. R. 8779) in accordance with section 4 (a) of the Administrative Procedure Act. It was provided that comments on the proposal would be received through January 3, 1956 and that ten additional days would be allowed for filing of comments and briefs in reply to the original comments. Comments were received from the following:

Kansas State Corporation Commission (Kansas).

New York Public Service Commission (New York).

North Carolina Utilities Commission (North Carolina).

Oklahoma Corporation Commission (Oklahoma).

Communications Workers of America (CWA).

United States Independent Telephone Association (USITA).

American Telephone and Telegraph Company, in behalf of the Bell System Telephone Companies (AT&T).

AT&T filed reply comments and also filed a reply to a late supplemental filing of CWA. On April 23, 1956 a letter was received from the New Mexico State Corporation Commission indicating opposition to the proposed rules revision.

3. The system of accounts presently provides that use of account 100.2, "Telephone plant under construction," is not mandatory for construction projects which will be completed ready for service within two months. The proposed revision adds to this existing exemption a provision that there may also be charged directly to the plant in service accounts the cost of any construction project for which the gross additions to plant are estimated to amount to less than $10,000. It will be seen that the net effect of the proposed revision is that use of account 100.2 would not be required for projects amounting to less than $10,000 even though they are not completed ready for service within two months.

4. AT&T, in support of the rules change contained in the Notice of Proposed Rule Making, asserted that the present two-months rule was beneficial in permitting dispensing with a considerable amount of accounting expense, as well as field reporting and related record keeping, without loss of administrative benefits and without material effect on the accounts. It argues, however, that the two-months rule without an accompanying amount dividing line makes impossible a complete realization of the benefits of clearing the cost of minor jobs directly to telephone plant in service accounts. This is because of the necessity of constantly reviewing construction project records to see that minor jobs are not being delayed beyond two months in their completion and the cost of record adjustments when such delay is found. The tendency, as a consequence of the necessity for constant review, it is asserted, has been to treat as specific estimate undertakings all construction projects above the general level of $5,000. If the rules change is adopted it is expected by AT&T that the specific estimate monetary dividing line will be generally increased to or near to the full $10,000 limit. It is stated that, among other changes, there will be benefits flowing from the elimination of the following with respect to additional minor projects:

(a) Specific estimate authorization sheets, detailed ledger sheets and completion reports.

(b) Computation of charges for labor, material, engineering, supervision, supply expense and other costs by individual jobs.

(c) Work in connection with the transfer of charges from account 100.2 to account 100.1.

(d) Work in determination of interest during construction.

(e) Reclassification of "currently ready for service" jobs not completed within two months to "under construction" accounting status.

In addition to the above eliminations, AT&T states that development of retirement unit costs would be simplified if it were made practicable to increase the monetary limits on specific estimates. AT&T estimates cost savings to the Bell System companies from adoption of the proposal of several hundreds of thousands of dollars annually. AT&T states that the proposal will have only a negligible effect on revenue requirements from depreciation expense and rate base standpoints and should be judged more on the cost savings it will produce in reporting and record keeping.

5. The USITA in its comments stated that statements of views received from members of its Accounting Committee "indicate no objection" to the proposed change. Oklahoma also said it saw "no objection" to the change. The Accounting Bureau of the New York Public Service Commission "fully approves" the proposed amendment. Kansas, while it felt itself not in a position to comment on the relative merits of the proposed change on a nation-wide basis, expressed the opinion that the change would be without merit for adoption in Kansas at this time. North Carolina opposed the amendment on the grounds that such saving in accounting costs as might result certainly would not be major in amount while, on the other hand, the change would result in the inclusion in account 100.1, "Telephone plant in service," of construction costs "substantial in the aggregate" relating to physical plant which actually, in numerous instances, would not be placed in service for several months thereafter. This, North Carolina contends, would occasion the taking of a greater amount of depreciation prematurely and accordingly would increase the level of expenses. It added that adoption of the proposal would increase revenue requirements in two ways, (1) a larger net book cost rate base, and (2) greater depreciation expense.

6. CWA opposed the change in the rules and its opposition revolves around its statement that adoption of the change "would allow the Bell System and large independent companies to inflate their rate bases by charging to 'Telephone plant in service' equipment which is not yet in use and from which the public is receiving no benefit." CWA stated that it had no means of knowing the effect upon the accounts of the change proposed since information was not available to it of the number and total value of construction projects costing less than $10,000. It added and stressed the point,

however, that no matter how few the less-than-$10,000 projects have been in the past that fact might not be a reliable indicator of the future if the rule were changed because of the ability of telephone companies to break up large construction projects into small segments and the difficulty to regulatory bodies in detecting and taking steps to prevent such subversion of the rule. CWA requested a public hearing in the proceeding. The reply comments of AT&T, the supplemental filing of CWA (received after the closing date for receipt of comments), and the AT&T reply to the latter are not summarized herein but they are considered and given effect in the discussion following.

7. It is believed that the question of expense savings from the proposed change in accounting need not be discussed further. All parties are in agreement that there should be savings resulting although there are differences in views as to their relative magnitude. In view of the contentions made with respect to effect upon revenue requirements, in particular by CWA and also by North Carolina, the decision whether or not to adopt the proposed amendment must take into consideration the validity of the revenue requirement contentions. North Carolina foresees larger amounts of depreciation expense being accrued if the proposal is adopted. This is obviously because it assumes an unchanged depreciation rate will be applied for the longer time the book cost of plant will be carried in telephone plant in service accounts. It also overlooks the fact that the amounts in the depreciable plant accounts will be smaller by the amounts of interest during construction that would otherwise be accrued. Depreciation rates are subject to adjustment downward as service lives increase and no one is warranted in assuming that depreciation rates will not be so adjusted as conditions change. Actually, less depreciation expense in total will be accrued if the amendment is adopted because the service value will be less by the amount of interest during construction that would otherwise be accrued and service value fixes the ceiling on the amount of depreciation expense which can properly be accrued. It is, of course, true that the amounts of depreciation expense accrued by time periods will be changed somewhat.

8. The question remaining is whether or not revenue requirements, from causes other than savings through reduced record keeping and through any minor changes in depreciation expense, will be altered as a result of adopting the proposal. As has already been noted, AT&T stated in its comments that the effect on the Bell System rate base will be negligible. In computations made by the Commission's staff a similar conclusion was reached. This comes about principally because, while the amounts expended for construction will enter the plant-in-service accounts earlier under the proposal, these amounts will not include any interest capitalized while the plant is under construction as presently required in the Commission's accounting rules. At the most, the increase in revenue requirements would be slight, and this increase would be further minimized by the fact that interest during construction is not taxable income as accrued and cannot be depreciated for Federal income tax purposes. In any event, statements supplied for the record by AT&T including those filed in reply to the comments of CWA, support the conclusion that the bulk of projects under $10,000 in amount are completed in less than two months so the effect of the amendment will be small. (This is not to say, however, that the telephone companies will not realize substantial savings in record keeping since, as noted in paragraph 4, the adoption of the proposal will permit the elimination of various "paper work" particularly if, as AT&T anticipates, the specific estimate monetary dividing line is increased by the various Bell System telephone companies.) It is recognized that the timing of impact of revenue requirements by years changes somewhat but this also is minor and should not be permitted to prevent adoption of the amendment. Accordingly, the amendment to the note to account 100.2 proposed in paragraph 4 of the Notice of Proposed Rule Making will be ordered. In view of the foregoing analysis of the facts in this proceeding it does not appear that a public hearing, as requested by CWA, would contribute substantially to the record and the request of CWA for such a hearing is accordingly denied.

9. As noted in paragraph 1 above, the Commission was of the view that risks involved in permitting delays in accounting for retirement of plant no longer in service are such that it should not issue a rule making proposal establishing in the system of accounts a specific amount below which retirements would not be required to be recorded in the accounts in advance of physical removal of plant. AT&T, in its comments dated December 30, 1955, expressed the belief "that some clarification of the Commission's statement as to retirements as set forth in the proposed rule making is essential since it appears to be in conflict with the Commission's previous position." The Commission's "previous position" referred to is apparently that contained in its letter to AT&T of November 21, 1952 replying to a letter dated November 13, 1952. The USITA called attention, also, "to the practical necessity of a change in the system of accounts which would permit, under certain conditions, deferral of retirements until the plant has been physically removed." The Accounting Bureau of New York supported the Commission's decision not to issue a rule making proposal relating to retirements.

10. The system of accounts, in particular section 2-25, when read literally contemplates that retirement accounting entries shall be made without delay when plant is cut out of service except for the special provision with respect to station installations and drop and block wires contained in sub-paragraph (c) of section 2-25. The question of what could be considered compliance with the system of accounts in the matter of timing of plant retirement entries came up in 1952 and was one subject in the exchange of letters with AT&T in November, 1952. In brief, the Commission informed AT&T that a telephone company would not be considered as failing to comply with the system of accounts even though retirement entries for plant other than large individual items such as entire buildings, entire central offices, and large P. B. X.'s were delayed until the calendar month following that in which withdrawn from service. It was understood, in addition, that compliance with the system of accounts would call for accounting retirement, in the month of withdrawal from service, of large sections of plant when it was defintely known that they would not be physically removed during the following month. The Commission is advised that the Bell telephone companies have construed its reply of November 21, 1952 to the AT&T letter of November 13, 1952 to permit deferring book entries for retirement of plant when less than $5,000 is involved until the month of physical removal. The correspondence is not explicit in permitting such deferment beyond one month following withdrawal from service but it is obvious that there would have been little real relief unless the authorization were applied as it has been.

11. The Commission did not intend, by failing to include in its rule making proposal an amendment relating to retirements, to alter the position taken in its exchange of correspondence with AT&T in 1952. It appears, however, in view of the comments of AT&T and USITA, that some supplementation of the system of accounts by way of clarification regarding plant retirement accounting would be in order. Such supplemental language is included in the Order herein.

It appearing that the proposed rule making herein has indicated a need for amendment of the Commission's accounting rules;

It is ordered, That under Authority contained in sections 4 (i) and 220 (a) of the Communications Act of 1934, as amended, Part 31 (Uniform System of Accounts for Class A and Class B Telephone Companies) of the Commission's Rules and Regulations is amended as follows, effective January 1, 1957:

The note to the text of § 31.100:2 is amended to read as follows:

NOTE: There may be charged directly to the appropriate plant accounts the cost of any construction project which is estimated to be completed ready for service within two months. There may also be charged directly to the plant accounts the cost of any construction project for which the gross additions to plant are estimated to amount to less than $10,000.

Paragraph (a) of § 31.2–25 is amended to read as follows:

(a) To the end that the telephone plant accounts (note §§ 31.2–20, 31.2–21) shall at all times disclose the original cost (note § 31.01–3 (x)) of all property in service, the original cost of retired property, whether replaced or not (except as provided in paragraph (b) (2) of this section), shall be credited to the account or accounts in this classification to which such cost was charged. Normally, these retirement credits with respect to such plant as entire buildings, entire central offices, large private branch exchanges, all plant abandoned, and any large sections of plant withdrawn from service with knowledge that they will not be physically removed during the following month shall be entered in the accounts for the month in which use of the property ceased and no later than the next succeeding month with respect to other plant: Provided, That when literal compliance with this provision for timing of entries with respect to the property amounting to less than $5,000 retired under any one project would involve an unreasonable amount of record keeping and estimating of quantities, original costs, and salvage, such entries may be deferred until physical removal of the property or decision to abandon it in place if there is assurance that such removal or decision will not be unduly delayed. Every company shall, therefore, take such measures and establish such procedure as will insure strict compliance with these requirements. When any item of property subject to plant retirement accounting is worn out, lost, sold, destroyed, abandoned, surendered upon lapse of title, becomes permanently unserviceable, is withdrawn, or for any other reason is retired from service, the amount in the plant acounts applicable to that item shall be credited to the appropriate plant accounts, and the retirement entry shall refer to the source (or to the supporting records showing the source) in the continuing property record from which the cost was obtained. (Note also paragraph (e) of this section.)

(Sec. 4, 48 Stat. 1066 as amended; 47 U. S. C. 154; interprets or applies sec. 220, 48 Stat. 1078; 47 U. S. C. 220.)

Adopted: June 20, 1956.

Released: June 21, 1956.

FEDERAL COMMUNICATIONS COMMISSION,
[SEAL] MARY JANE MORRIS,
Secretary.

[F. R. Doc. 56–5019; Filed, June 25, 1956; 8:49 a. m.]

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

Chapter II—Corps of Engineers, Department of the Army

PART 207—NAVIGATION REGULATIONS

MISCELLANEOUS AMENDMENTS

Pursuant to the provisions of section 7 of the River and Harbor Act of August 8, 1917 (40 Stat. 266; 33 U. S. C. 1), § 207.300 governing the use and navigation of the Ohio River, Mississippi River above Cairo, Illinois, and their tributaries is hereby amended to include in footnotes appropriate remarks regarding the discontinuance of operation of Rough River Lock and Dam and revision of paragraphs (v) (1) and (w) pertaining to navigation lights at locks and dams, as follows:

§ 207.300 *Ohio River, Mississippi River above Cairo, Ill., and their tributaries; use, administration, and navigation*—(a) *Authority of Lock Masters.* * * *

NOTE 7: Operation of Rough River Lock and Dam No. 1, near Hartford, Kentucky, has been discontinued.

* * * * *

(v) *Navigation lights for use of all locks and dams except on the Little Kanawha, Big Sandy, Muskingum, Kentucky, Barren, Rough and Green (Locks No. 3–6) Rivers, and the Illinois and Mississippi Canal.* (1) (i) At locks at all fixed dams and at locks at all movable dams when the dams are up so that there is no navigable pass through the dam, the following navigation lights will be displayed during hours of darkness:

(*a*) Three green lights visible through an arc of 360° arranged in a vertical line on the upstream end of the river (guard) wall unless the intermediate wall extends farther upstream. In the latter case, the lights will be placed on the upstream end of the intermediate wall.

(*b*) Two green lights visible through an arc of 360° arranged in a vertical line on the downstream end of the river (guard) wall unless the intermediate wall extends farther downstream. In the latter case, the lights will be placed on the downstream end of the intermediate wall.

(*c*) A single red light visible through an arc of 360° on each end (upstream and downstream) of the land (guide) wall.

(*d*) At Locks No. 1 and 2, Green River, when the locks are not in operation because of high river stages, a single red light will be visible through an arc of 360° on each end (upstream and downstream) of the lock river (guard) wall at which time the lights referred to in (*a*), (*b*), and (*c*) of this subdivision, will not be visible.

(ii) If one or more bear traps or weirs are open or partially open, which may cause a set in current conditions at the upper approach to the locks, this fact will be indicated by displaying a circular disk 5 feet in diameter, on or near the light support on the upstream end of the land (guide) wall during the hours of daylight, and will be indicated during hours of darkness by displaying a white (amber) light vertically under and 5 feet below the red light on the upstream end of the land (guide) wall.

(2) * * *

(w) Navigation lights for use at locks and dams on Little Kanaeha, Big Sandy, Muskingum, Kentucky, Barren, Rough, and Green (Locks No. 3–6) Rivers, and the Illinois and Mississippi Canal. A single red light visible through an arc of 360° shall be displayed during hours of darkness at each end of the river wall or extending guard structures until these structures are awash.

NOTE: Locks which have been closed to navigation are listed in the footnotes to paragraph (a) of this section.

* * * * *

(Sec. 4, 28 Stat. 362, as amended; 33 U. S. C. 1) [Regs., 8 June 1956, 800.211–ENGWO]

[SEAL] JOHN A. KLEIN,
Major General, U. S. Army,
The Adjutant General.

[F. R. Doc. 56–4988; Filed, June 25, 1956; 8:45 a. m.]

TITLE 49—TRANSPORTATION

Chapter I—Interstate Commerce Commission

[Docket No. 3666]

[Order No. 24]

PART 73—SHIPPERS

PART 78—SHIPPING CONTAINER SPECIFICATIONS

MISCELLANEOUS AMENDMENTS

At a session of the Interstate Commerce Commission, Division 3, held at its office in Washington, D. C., on the 4th day of June 1956.

The matter of revision of certain regulations governing the transportation of explosives and other dangerous articles, formulated and published by the Commission, being under consideration, and

It appearing that Notice No. 24, dated February 23, 1956, setting forth certain proposed amendments to the said regulations, and the reasons therefor, and stating that consideration was to be given thereto, was published in the FEDERAL REGISTER on March 31, 1956 (21 F. R. 2045), pursuant to the provisions of section 4 of the Administrative Procedure Act; that pursuant to said notice interested parties were given an opportunity to be heard with respect to said proposed amendments; that written views or arguments were submitted to the Commission with respect to the proposed amendments;

And it further appearing that said views and arguments with respect to the proposed amendments are such as to warrant revision at this time of certain of the proposed amendments, and that in all other respects the proposed amendments set forth in the above referred-to Notice No. 24 are deemed justified and necessary:

It is ordered, That the aforesaid regulations governing the transportation of explosives and other dangerous articles be, and they are hereby, amended in the manner and to the extent set forth below, except for the specific deletions and modifications set forth as follows:

1. In § 73.31 paragraph (a), amend the entire table and Note 7 of the notes there-

to; add Notes 9 and 10 to paragraph (a) table; amend paragraph (f) to read as set forth below.

2. In § 73.119 amend paragraphs (a) (12), and (e) (2), and (f) (3) to read as set forth below.

3. In § 73.123 amend paragraph (a) (5) to read as set forth below.

4. In § 73.124 amend paragraph (a) (6) to read as set forth below.

5. In § 73.247 amend paragraph (a) (11) to read as set forth below.

6. In § 73.264 amend paragraph (a) (8) to read as set forth below.

7. In § 73.268 amend paragraph (b) (1) to read as set forth below.

8. Delete the entire proposed amendment to § 73.289 paragraph (a) (2).

9. In § 73.314 paragraph (a) table, amend the entry, "Vinyl methyl ether, inhibited"; amend Note 2 to paragraph (a) table; amend paragraph (b) to read as set forth below.

10. In § 73.346 amend paragraph (a) (10) as set forth below.

11. In § 73.353 amend paragraphs (a) (5) and (b) as set forth below.

12. In § 78.257 amend paragraph (a) to read as set forth below.

13. In § 78.258 amend paragraph (a) to read as set forth below.

14. In § 78.281-6 paragraph (a), amend the last sentence to read as set forth below.

15. In § 78.282-8 paragraph (a), amend the 7th sentence to read as set forth below.

16. In § 78.289-8 amend paragraph (a) to read as set forth below.

17. In § 78.293-16 delete paragraph (a) (7) and renumber paragraph (a) (8) to read (a) (7).

It is further ordered, That this order shall become effective August 31, 1956 and shall remain in effect until further order of the Commission;

It is further ordered, That compliance with the herein prescribed and amended regulations is hereby authorized on and after the date of service of this order;

And it is further ordered, That copies of this order be served upon all parties of record herein, and that notice shall be given to the general public by depositing a copy in the office of the Secretary of the Commission at Washington, D. C., and by filing a copy thereof with the Director, Division of Federal Register.

(Sec. 204, 49 Stat. 546, as amended, sec. 835, 62 Stat. 739; 49 U. S. C. 304, 18 U. S. C. 835)

By the Commission, Division 3.

[SEAL] HAROLD D. MCCOY,
Secretary.

PART 73—SHIPPERS

SUBPART A—PREPARATION OF ARTICLES FOR TRANSPORTATION BY CARRIERS BY RAIL FREIGHT, RAIL EXPRESS, HIGHWAY OR WATER

Amend § 73.31 paragraph (a) table and notes thereto; paragraph (c); paragraph (f); entire paragraph (g); paragraph (h); cancel note 1 to paragraph (l) (19 F. R. 3258, June 3, 1954) (18 F. R. 802, Feb. 7, 1953) (16 F. R. 9373, Sept. 15, 1951) (20 F. R. 10162, Dec. 31, 1955) (20 F. R. 4413, June 23, 1955) (17 F. R. 9835, Nov. 1, 1952) (15 F. R. 8278, Dec. 2, 1950) (49 CFR 1950 Rev, 1954 Supp., 73.31) to read as follows:

§ 73.31 *Qualification, maintenance, and use of tank cars.* (a) * * *

Where these regulations call for specifications Nos.—	These specification containers may also be used subject to the provisions of the following notes—
103 [4,5,9] and 103-W [4,5,9]	ARA-II [1,4,9], III [4,5,9] and IV. [5,9]
103A [4] and 103A-W [4]	ARA-II [2,4] and III. [2,4]
103B [4] and 103B-W [4]	ARA-II [4] and III [4] rubber lined.
103C-W	103C. [5]
103D-W, 103E-W, 103A-N-W.	(See Note 10.)
104 [4,5] and 104-W [4,5]	ARA-IV. [4,5]
105A100 and 105A100-W.	104A [7] and 104A-W. [7]
105A100-AL-W	104A-AL-W. [7]
105A300-W	ARA-V, [3] ICC-105 [3] and 105A300. [3]
105A400-W	105A400.
105A500-W	105A500.
105A600-W	105A600.
106A500 and 106A500-X.	ICC-27 tanks mounted on a car and classified as a multi-unit tank prior to Oct. 1, 1930. [6]
106A800 and 106A800-X.	None.
106A800NCI	None.
107A****	None.

[1] Tank must be tested to a pressure of 60 pounds per square inch and safety valves be set to open at a pressure of 25 pounds per square inch.

[2] Tanks and their appurtenances must have been originally designed or subsequently reconstructed for the transportation of acids.

[3] Safety valves on these cars must be set to open at a pressure not exceeding 225 pounds per square inch.

[4] Tank cars equipped with safety vents must have the vent closure so chained or otherwise fastened as to prevent misplacement.

[5] These cars must not be used for shipments of smokeless powder in water unless equipped with positive closure type bottom outlet valves.

[6] Tanks made under specification BE-27 and mounted on a car, and classified as multi-unit tank cars prior to October 1, 1930, may be continued in service until further order of the Commission, provided they have been properly retested and are fitted with valves, valve protection devices, and safety devices of approved type.

[7] Tanks must be restencilled to proper 105A-100, 105A100-W or 105A100AL-W classifications within 2 years from Aug. 31, 1956.

[8] Tanks authorized under I. C. C. Special Orders of Nov. 5, 1937, and Nov. 14, 1939, may be continued in service as provided by order and revision thereof.

[9] Cars built prior to Aug. 31, 1956, equipped with safety valves having a pressure setting of 35 pounds per square inch may be used. Cars equipped with 25 pounds per square inch safety valves may be continued in service but these valves may not be reset to 35 pounds per square inch without changing spring to a design suitable for the increased pressure setting.

[10] Existing tanks built of materials and equipped with fittings complying with these specifications must be restencilled to indicate proper classification.

* * * * *

(c) For detailed procedure to be followed in making repairs or alterations to tanks of all tank car classifications, together with methods of filing application for securing approval from the Secretary of the Mechanical Division, Association of American Railroads, see Appendix R, Association of American Railroads Code for Repairs to Tank Car Tanks.

* * * * *

(f) After alterations of tank cars or equipment therefor from original design, a certificate of compliance with the specifications, similar to that required in specifications 103, 103-W, 103AL-W, 105A100, 105A100-W, 105A100AL-W, 105A300-W, 105A300AL-W, 106A500, 107A, and 110A500-W (§§ 78.265, 78.280, 78.291, 78.270, 78.285, 78.294, 78.286, 78.300, 78.275, 78.277, and 78.293 of this chapter), respectively, must be furnished to the car owner, to the Bureau of Explosives, and to the Secretary Mechanical Division, Association of American Railroads.

(g) Tanks, interior heater systems and safety valves must be retested at intervals of time as specified in Retest Tables 1, 2, and 3.

(1) Each tank must be retested by completely filling the tank and manway nozzle, or expansion dome, with water or other liquid of similar viscosity having a temperature which must not exceed 100 degrees Fahrenheit during retest and applying a pressure as specified. The specified pressure must be held for the minimum period prescribed without leakage or evidence of distress. Calking of welded joints to stop leaks developed during retests is prohibited. Tanks in service 10 years or over must be internally inspected and interior heater systems inspected for defects which would make leakage or failure probable during transit.

(2) Anchor rivet housings, if used, must not be removed during retest. They shall be retested by applying an air pressure of 100 pounds per square inch through openings in the tank shell and must show no leakage.

(3) The tank lagging and jacket need not be removed unless leakage is indicated by a drop in pressure. When lagging is not removed, the prescribed test pressure must be held for the minimum number of minutes shown in Tables 1 and 3 for tests under this condition.

(4) Interior heater systems shall be retested with hydrostatic pressure and shall be tight at 200 pounds per square inch.

(5) Retests of exterior heater systems is not a specification requirement.

(6) Retest of safety valves: Each valve must be retested by air, or inert gas and must open at the prescribed pressure within tolerances specified or below maximum pressure permitted and must be vapor tight at or above prescribed limits. See Tables 1, 2, and 3.

(7) Repairs: Tanks must be retested before being returned to service after any repairs requiring welding, riveting or calking of rivets. Rubber lined tanks must be retested before lining is renewed. Interior heater systems must be retested after repairs or renewals of any part of heater systems.

(8) Retests of all tanks and safety valves must be certified by party making tests to owners of tank cars and to the Bureau of Explosives. Certifications must show initials and numbers of cars, pressure to which tested, date of test, place of test, and by whom test is made.

(9) Periodic retests of metal tanks, safety valves and interior heater systems, except cars in chlorine service and tanks to specifications ICC-106A500, 106A500X, 106A800, 106A800X, 106A800-NCI, 107A**** or 110A500-W, may be made at any time during the calendar year the retest falls due.

TABLE 1—RETEST PERIODS AND PRESSURES

Classification	Tank retests				Safety valve retest (years)	Interior heater systems retest				Tank test (p. s. i.)	Safety valve (p. s. i.[c])	Safety valve vapor tight (p. s. i.) (minutes)	Retest holding time (minutes)	Test time when lagging is not removed (minutes)
	Up to 10 years	10 to 22 years	Over 10 years	Over 22 years		Up to 10 years	10 to 22 years	Over 10 years	Over 22 years					
ICC-103	10	-----	10	-----	10	10	-----	10	-----	60	*35	28	10	20
ICC-103A [d]	5	3	-----	1	None	5	3	-----	1	60	-----	-----	10	20
ICC-103B [f]	None	None	-----	None	None	5	3	-----	1	60	-----	-----	-----	-----
ICC-103C [e] [d]	5	3	-----	1	(e)	5	3	-----	1	60	*45	-----	10	20
ICC-104	10	-----	10	-----	10	10	-----	10	-----	60	*35	28	10	20
ICC-105 [a]	10	-----	10	-----	5	-----	-----	-----	-----	500	225	180	30	30
ICC-105A100	10	-----	10	-----	5	-----	-----	-----	-----	100	75	60	10	20
ICC-105A300 [a]	10	-----	10	-----	5	-----	-----	-----	-----	300	225	180	30	30
ICC-105A400 [a]	10	-----	10	-----	5	-----	-----	-----	-----	400	300	240	30	30
ICC-105A500 [b] [a]	10	-----	10	-----	5	-----	-----	-----	-----	500	375	300	30	30
ICC-105A600 [b] [a]	10	-----	10	-----	5	-----	-----	-----	-----	600	450	360	30	30
ICC-103-W	10	-----	10	-----	10	10	-----	10	-----	60	*35	28	10	20
ICC-103A-W [d]	5	3	-----	1	None	5	3	-----	1	60	-----	-----	10	20
ICC-103B-W [f]	None	None	-----	None	None	5	3	-----	1	60	-----	-----	-----	-----
ICC-103B100-W [f]	None	-----	None	-----	5	-----	-----	-----	-----	100	75	60	10	20
ICC-103C-W [e] [d]	5	3	-----	1	(e)	5	3	-----	1	60	35	28	10	20
ICC-103D-W [e] [d]	5	3	-----	1	(e)	5	3	-----	1	60	35	28	10	20
ICC-103E-W [e] [d]	5	3	-----	1	(e)	5	3	-----	1	60	35	28	10	20
ICC-103A-N-W [e] [d]	5	3	-----	1	None	5	3	-----	1	60	-----	-----	10	20
ICC-103AL-W	10	-----	10	-----	10	10	-----	10	-----	60	*35	28	10	20
ICC-103A-AL-W [e] [d]	5	3	-----	1	(e)	5	3	-----	1	60	35	28	10	20
ICC-104-W	10	-----	10	-----	10	10	-----	10	-----	60	*35	28	10	20
ICC-105A100-AL-W	10	-----	10	-----	5	10	-----	10	-----	100	75	60	10	20
ICC-105A300-AL-W	10	-----	10	-----	5	-----	-----	-----	-----	300	225	180	30	30
ICC-105A100-W	10	-----	10	-----	5	10	-----	10	-----	100	75	60	10	20
ICC-105A300-W [a]	10	-----	10	-----	5	-----	-----	-----	-----	300	225	180	30	30
ICC-105A400-W [a]	10	-----	10	-----	5	-----	-----	-----	-----	400	300	240	30	30
ICC-105A500-W [b] [a]	10	-----	10	-----	5	-----	-----	-----	-----	500	375	300	30	30
ICC-105A600-W [b] [a]	10	-----	10	-----	5	-----	-----	-----	-----	600	450	360	30	30
ICC-109A300-W	10	-----	10	-----	5	-----	-----	-----	-----	300	225	180	30	30

[a] Tanks and safety valves in chlorine service must be retested every 2 years.

[b] Special requirements for carbon dioxide: Valves must be retested at pressure required for new construction.

[c] Safety valves indicated with * are set at specified pressure plus or minus 3 p. s. i. All other valves must be open at a pressure not exceeding that specified.

[d] A commodity for which the tank is approved may be used for filling tank and dome when retesting tanks in service not over 10 years.

[e] Safety valve retest period is same as tank retest period.

[f] Tanks must be retested before rubber lining is renewed or before being returned to service after any repairs requiring welding, riveting or calking of rivets.

TABLE 2—RETEST PERIODS AND PRESSURES

Classification	Tank retest (years [a] [b])	Safety valves (years [c])	Tank test			Safety valve (p. s. i.)	Safety valve vapor tight (p. s. i.)
			Holding time minimum (seconds)	Hydrostatic displacement test (p. s. i.)	Air test for leaks (p. s. i.)		
ICC-106A500	5	2	30	500	100	375	300
ICC-106A500X	5	2	30	500	100	375	300
ICC-106A800	5	2	30	800	100	600	480
ICC-106A800X	5	2	30	800	100	600	480
ICC-106A800NCI	5	2	30	800	100	600	480
ICC-107A****	5	[f]2	30	(d)	None	(e)	(e)
ICC-110A500-W	[g]5	2	10 minutes	500 hydrostatic	-----	375	300

[a] Tank must be condemned when it leaks or permanent expansion exceeds 10 percent of the total expansion.

[b] Reports giving data showing results of these retests must be rendered by the party making the test to the owner of the tank and to the Bureau of Explosives, and each tank passing the test must be marked with the date (month and year) plainly and permanently stamped into the metal of one head or chime. For example, 1–54 for January 1954. Dates of previous tests must not be obliterated. (On ICC–107A**** tanks date should be stamped into metal of marked end.)

[c] Safety vents of the frangible disc and fusible plug types must be inspected after each loaded trip of tank as follows: Remove at least 1 vent for visual inspection and if it shows signs of deterioration, all the vents must be removed and inspected and those which do not meet the requirements must be renewed. See Note f for ICC–107A**** tanks.

[d] Each tank must be tested to a pressure at least equal to the marked test pressure of the tank.

[e] Safety valve must open at a pressure not exceeding the marked test pressure of the tank and must be vapor tight at 80 percent of the marked test pressure of the tank.

[f] ICC–107A**** tanks used for transportation of flammable gasses must have safety devices of valve type retested once in every 2 years as prescribed. When safety devices of frangible disc type are used, 1 from each car must be tested as prescribed.

[g] Tank must be condemned when it leaks or shows evidence of distress during hydrostatic test.

TABLE 3—(AAR CLASSIFICATIONS) RETEST PERIODS AND PRESSURES

Classification	Tank retests				Safety valve retest (years)	Interior heater systems retest				Tank test (p. s. i.)	Safety valve (p. s. i.[b])	Safety valve vapor tight (p. s. i. minutes)	Retest holding time (minutes)	Test time when lagging is not removed (minutes)
	Up to 10 years	10 to 22 years	Over 10 years	Over 22 years		Up to 10 years	10 to 22 years	Over 10 years	Over 22 years					
ARA-II	-----	-----	-----	10	10	-----	-----	-----	10	60	*25	20	10	20
ARA-II Acid [1]	-----	-----	-----	1	None	-----	-----	-----	1	60	-----	-----	10	20
ARA-II R. L.[2] [c]	-----	-----	-----	None	None	-----	-----	-----	1	60	-----	-----	-----	-----
ARA-III	-----	-----	-----	10	10	-----	-----	-----	10	60	*25	20	10	20
ARA-III Acid [1]	-----	-----	-----	1	None	-----	-----	-----	1	60	-----	-----	10	20
ARA-III R. L.[2] [c]	-----	-----	-----	None	None	-----	-----	-----	1	60	-----	-----	-----	-----
ARA-IV	-----	-----	-----	10	10	-----	-----	-----	10	60	*25	20	10	20
ARA-IVA	-----	-----	-----	10	5	-----	-----	-----	-----	100	*35	28	20	20
ARA-V [a]	-----	-----	-----	10	5	-----	-----	-----	-----	300	225	180	30	-----
AAR-201A35	10	-----	10	-----	10	-----	-----	10	-----	35	*15	12	10	-----
AAR-203	10	-----	10	-----	10	-----	-----	10	-----	60	*35	28	10	20
AAR-201A35-W	10	-----	10	-----	10	-----	-----	10	-----	35	*15	12	10	-----
AAR-203-W	10	-----	10	-----	10	-----	-----	10	-----	60	*35	28	10	20
AAR-205A300-W	10	-----	10	-----	5	-----	-----	-----	-----	300	225	180	30	-----
AAR-201A70-W	10	-----	10	-----	10	-----	-----	10	-----	70	*35	28	10	-----

[1] Unlined acid tanks.

[2] Rubber lined tanks.

[a] Tanks and safety valves in chlorine service must be retested every 2 years.

[b] Safety valves indicated with * are set at specified pressure plus or minus 3 p. s. i. All other valves must be open at a pressure not exceeding that specified.

[c] Tanks must be retested before rubber lining is renewed or before being returned to service after any repairs requiring welding, riveting or calking of rivets.

(h) Tank cars and appurtenances may be used for the transportation of any commodity for which they are authorized, as indicated on the certificate of construction. When a car is to be used for the transportation of a commodity other than those approved on the certificate of construction, it must be approved for such loading by the A. A. R. Tank Car Committee. Changes in fittings or commodity stenciling required to transfer a car from one service to another as authorized on the certificates of construction may be made only by the owner or owner's authorized agent; except, that where no change in fittings or other appurtenances is necessary, ICC-103, 103-W, 103AL-W, 103A, 103A-W, 103A-AL-W, 103A-N-W, 103B, 103B-W, 103C, 103C-W, 103D-W, and 103E-W (§§ 78.265, 78.280, 78.291, 78.266, 78.281, 78.292, 78.299, 78.267, 78.282, 78.268, 78.283, 78.297, and 78.298 of this chapter) tank cars may be transferred from one commodity service to another when authorized for the transportation of such commodity by this part.

NOTE 1: For qualification of cylinders and tank cars for compressed gases see §§ 73.34, 73.301 (g), and 73.314.

* * * * *

(i) * * *

[Note 1 canceled.]

SUBPART C—FLAMMABLE LIQUIDS; DEFINITION AND PREPARATION

1. Amend § 73.119 paragraph (a) (12); cancel paragraph (a) (13) and (18); amend paragraphs (e) (2) and (f) (3) (17 F. R. 7280, 7281, Aug. 9, 1952) (16 F. R. 5323, June 6, 1951) (15 F. R. 8298, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 73.119) to read as follows:

§ 73.119 *Flammable liquids not specifically provided for.* (a) * * *

(12) Spec. 103, 103-W, 103AL-W, 103D-W, 104, 104-W, 105A100, 105A100-W, 105A100AL-W, 105A300-W, 105A300AL-W, 105A400-W, 105A500-W, 105A600-W, ARA-II,[2] ARA-III,[2] ARA-IV,[2] or ARA-IV-A[2] (§§ 78.265, 78.280, 78.291, 78.269, 78.284, 78.270, 78.285, 78.294, 78.286, 78.297, 78.287, 78.288, 78.289, or 78.300 of this chapter). Tank cars. For cars equipped with expansion domes, manhole closures must be so designed that pressure will be released automatically by starting the operation of removing the manhole cover. (See § 73.432 for shipping instructions.)

(13) [Canceled.]

* * * * *

(18) [Canceled.]

* * * * *

(e) * * *

(2) Spec. 103, 103-W, 103AL-W, 103D-W, 104, 104-W, 105A100, 105A100-W, 105A100AL-W, 105A300-W, 105A300AL-W, 105A400-W, 105A500-W, 105A600-W, ARA-II,[2] ARA-III,[2] ARA-IV,[2] or ARA-IV-A[2] (§§ 78.265, 78.280, 78.291, 78.297, 78.269, 78.284, 78.270, 78.285, 78.294, 78.286, 78.287, 78.288, 78.289, and 78.300 of this chapter). Tank cars. Cars having expansion domes must be equipped with manhole closures, identification marks, and dome placards as prescribed in (f) (4), (g), (h), and (h) (1) of this section. (See Note 1 of paragraph (f) (3) of this section.)

(f) * * *

(3) Spec. 105A100, 105A100-W, 105A100AL-W, 105A300-W, 105A300AL-W, 105A400-W, 105A500-W, 105A600-W, or ARA-IV-A[2] (§§ 78.270, 78.285, 78.294, 78.286, 78.287, 78.288, 78.289, and 78.300 of this chapter) See Note 1 of this subparagraph. Tank cars. Spec. 104 (§ 78.269 of this chapter) and ARA-IV[2] tank cars are authorized under the conditions prescribed in paragraphs (f) (4), (g), (h), and (h) (1) of this section and Note 3 of this subparagraph.

[No change in Notes.]

* * * * *

2. Amend § 73.123 paragraph (a) (5) (15 F. R. 8301, Dec. 2, 1950) (49 CFR 73.123, 1950 Rev.) to read as follows:

§ 73.123 *Ethyl chloride.* (a) * * *

(5) Spec. 105A100, 105A100-W, 105A300-W, 105A400-W, 105A500-W, 105A600-W, or ARA-IV-A[1] (§§ 78.270, 78.285, 78.286, 78.287, 78.288, and 78.289 of this chapter). Tank cars. See Note 1 of § 73.119 (f) (3). (See § 73.432 for shipping instructions.)

* * * * *

3. Amend § 73.124 paragraphs (a) (5) and Note 1 thereto, and (a) (6) (16 F. R. 5324, June 6, 1951) (15 F. R. 8301, Dec. 2, 1950) (16 F. R. 9374, Sept. 15, 1951) (49 CFR 1950 Rev., 1954 Supp., 73.124) to read as follows:

§ 73.124 *Ethylene oxide.* (a) * * *

(5) Spec. 105A100, 105A100-W, or ARA-IV-A[1] (§§ 78.270, or 78.285 of this chapter). Tank cars. See Note 1 of § 73.119 (f) (3). (See § 73.432 for shipping instructions.)

NOTE 1: Because of the present emergency and until further order of the Commission, specification ARA-IV[1] and ICC-104 and 104-W (§§ 78.269 and 78.284 of this chapter) tank cars, converted as follows, are authorized for use. Tanks must be tested to 75 pounds per square inch hydrostatic pressure and show no leakage with lagging removed. Bottom discharge outlet must be removed, the opening closed with a riveted plate, and a sump applied. Safety valves must be removed and replaced by two safety valves of the type and size used on ICC-105A100 or 105A100-W (§§ 78.270 or 78.285 of this chapter) tank cars but set to open at 60 pounds per square inch instead of 75 pounds. The various approved dome fittings now required on ICC-105A100 or 105A100-W (§§ 78.270 or 78.285 of this chapter) tank cars, must be installed in an approved manner to provide for the loading, unloading, gauging, sampling, and taking of temperature of contents without removing the manhole closure. Tank jacket must be stenciled immediately above the mark ARA-IV[1], ICC-104, or ICC-104-W (§§ 78.269 or 78.284 of this chapter) with the words "For Ethylene Oxide Only".

(6) Spec. 105A300-W, 105A400-W, 105A500-W, or 105A600-W (§§ 78.286, 78.287, 78.288, or 78.289 of this chapter). Tank cars. Tanks must be restenciled 105A100 or 105A100-W and be equipped with safety valves of the type and size used on 105A100 and 105A100-W tank cars. See Note 1 of § 73.119 (f) (3). (See § 73.432 for shipping instructions.)

* * * * *

SUBPART E—ACIDS AND OTHER CORROSIVE LIQUIDS; DEFINITION AND PREPARATION

1. Amend § 73.247 paragraphs (a) (11) and (13) (15 F. R. 8314, Dec. 2, 1950) (18 F. R. 6778, Oct. 27, 1953) (49 CFR 1950 Rev., 1954 Supp., 73.247) to read as follows:

§ 73.247 *Acetyl chloride, antimony pentachloride, benzoyl chloride, benzyl chloride, pyro sulfuryl chloride, silicon chloride, sulfur chloride (mono and di), sulfuryl chloride, thionyl chloride, tin-tetrachloride (anhydrous), and titanium tetrachloride.* (a) * * *

(11) Spec. 103A-N-W (§ 78.299 of this chapter). Tank cars, authorized for benzyl chloride only. When shipped in unstabilized condition, the lading must be anhydrous and must be free from impurities such as iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent.

* * * * *

(13) Spec. 103A or 103A-W (§§ 78.266 or 78.281 of this chapter) tank cars. Tank cars, nickel clad at least 10 percent, authorized for stabilized benzyl chloride only. Acetyl chloride, benzoyl chloride, pyro sulfuryl chloride, sulfuryl chloride, and thionyl chloride when shipped in unstabilized condition, must be anhydrous and free from impurities such as iron.

2. Amend § 73.249 paragraph (a) (5) (15 F. R. 8314, Dec. 2, 1950) (49 CFR 73.249, 1950 Rev.) to read as follows:

§ 73.249 *Alkaline corrosive liquids, n. o. s., alkaline caustic liquids, n. o. s., and alkaline battery fluids.* (a) * * *

(5) Spec. 103, 103-W, 103A, 103A-W, 104, 104-W, 105A100, or 105A100-W (§§ 78.265, 78.280, 78.266, 78.281, 78.269, 78.284, 78.270, or 78.285 of this chapter). Tank cars.

* * * * *

3. Amend § 73.254 paragraph (a) (4) (20 F. R. 951, Feb. 15, 1955) (49 CFR 73.254, 1950 Rev.) to read as follows:

§ 73.254 *Chlorosulfonic acid and mixtures of chlorosulfonic acid-sulfur trioxide.* (a) * * *

(4) Spec. 103A, 103A-W, 103C-W, or 103E-W (§§ 78.266, 78.281, 78.283, or 78.298 of this chapter). Tank cars.

* * * * *

4. Amend § 73.263 paragraph (a) (9) (17 F. R. 9837, Nov. 1, 1952) (49 CFR 1950 Rev., 1954 Supp., 73.263) to read as follows:

§ 73.263 *Hydrochloric (muriatic) acid, hydrochloric acid mixtures, and sodium chlorite solution.* (a) * * *

(9) Spec. 103B or 103B–W (§§ 78.267 or 78.282 of this chapter). Tank cars. Authorized for acid not over 38 percent strength by weight. Except for hydrochloric (muriatic) acid of 22° Baume strength, and other fuming acids, safety vent of approved design equipped with frangible disc having ⅛ inch breather hole in the center thereof or a safety vent of approved design equipped with carbon discs permitting continuous venting may be used.

* * * * *

5. Amend § 73.264 paragraph (a) (8); cancel paragraph (a) (13) (20 F. R. 4417, June 23, 1955) (15 F. R. 8317, Dec. 2, 1950) (49 CFR 73.264, 1950 Rev.) to read as follows:

§ 73.264 *Hydrofluoric acid.* (a) * * *

(8) Spec. 103A, 103A–W, 105A100, 105A100–W, 105A300–W, 105A400–W, 105A500–W, 105A600–W, or ARA–IV–A[1] (§§ 78.266, 78.281, 78.270, 78.285, 78.286, 78.287, 78.288, and 78.289 of this chapter). Unlined metal tanks which have been subjected to adequate passivity or neutralization process. (See Note 1 to subparagraph (7) of this paragraph.) Authorized only for acid of 60 to 80 percent strength. If tanks are washed out with water they must be resubjected to passivity before reshipment.

* * * * *

(13) [Canceled.]

* * * * *

6. Cancel paragraph (a) (4) in § 73.265 (15 F. R. 8318, Dec. 2, 1950) (49 CFR 73.265, 1950 rev.)

§ 73.265 *Hydrofluosilicic acid.* (a) * * *

(4) [Canceled.]

* * * * *

7. In § 73.268 amend paragraph (b) (1); cancel paragraph (b) (2); add paragraph (c) (2) (17 F. R. 4294, May 10, 1952) (15 F. R. 8319, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 73.268) to read as follows:

§ 73.268 *Nitric acid.* * * *

(b) * * *

(1) Spec. 103C–W (§ 78.283 of this chapter). Tank cars.

(2) [Canceled.]

* * * * *

(c) * * *

(2) Spec. 103A–AL–W (§ 78.292 of this chapter). Tank car.

* * * * *

8. Amend § 73.271 paragraph (a) (7) (15 F. R. 8321, Dec. 2, 1950) (49 CFR 73.271, 1950 Rev.) to read as follows:

§ 73.271 *Phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.* (a) * * *

(7) Spec. 103A, 103A–W, or 103A–N–W (§§ 78.266, 78.281, or 78.299 of this chapter). Tank cars, when the tanks of these cars are lead-lined or the tanks are made of solid nickel at least 99 percent pure and all cast metal parts of the tank in contact with the lading have a minimum nickel content of approximately 96.7 percent.

* * * * *

9. Amend § 73.272 paragraph (h) (3) (15 F. R. 8321, Dec. 2, 1950) (49 CFR 73.272, 1950 Rev.) to read as follows:

§ 73.272 *Sulfuric acid.* * * *

(h) * * *

(3) Spec. 103A or 103A–W (§ 78.266 or § 78.281 of this chapter). Tank cars. Sulfuric acid, except oleum, mixed acid (nitric and sulfuric) (nitrating acid), and other fuming acids, may be transported in ICC–103A tank cars having safety vents equipped with lead discs having a ⅛ inch breather hole in the center thereof.

* * * * *

10. Amend § 73.291 paragraph (a) (8) (15 F. R. 8324, Dec. 2, 1950) (49 CFR 73.291, 1950 Rev.) to read as follows:

§ 73.291 *Flame retardant compound, liquid.* (a) * * *

(8) Spec. 103B or 103B–W (§ 78.267 or 78.282 of this chapter). Tank cars.

SUBPART F—COMPRESSED GASES; DEFINITION AND PREPARATION

In § 73.314 amend the following entries in paragraph (a) Table as indicated; amend Notes 2 and 9 to paragraph (a) Table; amend paragraph (b) (19 F. R. 8528, Dec. 14, 1954) (16 F. R. 9377, Sept. 15, 1951) (15 F. R. 8329, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 73.314) to read as follows:

§ 73.314 *Compressed gases in tank cars.* (a) * * *

Kind of gas	Maximum permitted filling density, Note 1	Required type of tank car, Note 2
Butadiene (pressure not exceeding 75 pounds per square inch at 105° F.), inhibited.	Note 3	ICC–105A100, 105A100–W, Note 9.
Liquid hydrocarbon gas (pressure not exceeding 75 pounds per square inch at 105° F.).	Note 6	ICC–105A100, 105A100–W, Note 9.
Liquefied petroleum gas (pressure not exceeding 75 pounds per square inch at 105° F.).	Note 3	ICC–105A100, 105A100–W, Note 9.
Vinyl methyl ether, inhibited. (See Note 14.)	68	ICC–105A100, 105A100–W, 105A300–W.

* * * * *

NOTE 2: When tank cars marked ICC–105A300–W (§ 78.286 of this chapter) are prescribed, tank cars marked ICC–105A400–W, 105A500–W, and 105A600–W (§§ 78.287, 78.288, and 78.289 of this chapter) may also be used. When ICC–105A100 or ICC–105A100–W (§§ 78.270 or 78.285 of this chapter) tank cars are prescribed, tank cars marked ICC–105A300–W, 105A400–W, 105A500–W, and 105A600–W (§§ 78.286, 78.287, 78.288, and 78.289 of this chapter), may also be used. When tank cars marked ICC–105A100AL–W (§ 78.294 of this chapter) are prescribed, tank cars marked ICC–105A300AL–W (§ 78.300 of this chapter) may also be used. When ICC–106A500 and 106A500X (§ 78.275 of this chapter) tank cars are prescribed, tank cars marked ICC–106A800 and 106A800X (§ 78.276 of this chapter) may also be used.

* * * * *

NOTE 9: For tank cars other than 106A (§ 78.275 or 78.276 of this chapter) type, used for the transportation of liquefied flammable gases, interior pipes of loading and unloading valves must be equipped with excess flow valves of approved design.

* * * * *

(b) The gas pressure at 105° F. in any lagged tank of tank cars of specs. 105A100, 105A100–W, 105A300–W, 105A400–W, 105A500, 105A600–W (§§ 78.270, 78.285, 78.286, 78.287, 78.288, and 78.289 of this chapter), and at 130° F. in any unlagged tank of tank car of specs. 106A500, 106A500X, 106A800, 106A800X, and 110A500–W (§§ 78.275, 78.276, and 78.293 of this chapter) must not exceed three-fourth times the prescribed retest pressure of the tank. The gas pressure at 130° F. in any unlagged tank of tank cars of the 107A (§ 78.277 of this chapter) series must not exceed seven-tenths of the marked test pressure of the tank.

[No change in Note 1.]

* * * * *

SUBPART G—POISONOUS ARTICLES; DEFINITION AND PREPARATION

1. Amend § 73.346 paragraph (a) (10) (19 F. R. 8528, Dec. 14, 1954) (49 CFR 1950 Rev., 1954 Supp., 73.346) to read as follows:

§ 73.346 *Poisonous liquids not specifically provided for.* (a) * * *

(10) Spec. 103, 103–W, 103A, 103A–W, 104, 104–W, 105A100, 105A100–W, 105A300–W, 105A400–W, 105A500–W, 105A600–W (§§ 78.265, 78.280, 78.266, 78.281, 78.269, 78.284, 78.270, 78.285, 78.286, 78.287, 78.288, 78.289 of this chapter), or ARA–IV–A.[1] Tank cars.

* * * * *

2. Amend § 73.353 paragraphs (a) (5) and (b) (17 F. R. 7282, Aug. 9, 1952) (49 CFR 1950 Rev., 1954 Supp., 73.353) to read as follows:

§ 73.353 *Methyl bromide.* (a) * * *

(5) Spec. 105A100, 105A100–W, 105A300–W, 105A400–W, 105A500–W, 105A600–W, 106A500, 106A500X, or 106A800 (§§ 78.270, 78.285, 78.286, 78.287, 78.288, 78.289, 78.275, or 78.276 of this chapter). Tank cars.

(b) Outage must be sufficient to prevent tank car from becoming entirely filled with liquid at the following temperature: Spec. 105A100, 105A100–W, 105A300–W, 105A400–W, 105A500–W, or 105A600–W (§§ 78.270, 78.285, 78.286, 78.287, 78.288, or 78.289 of this chapter) at 105° F.; spec. 106A500, 106A500X, or 106A800 (§§ 78.275 or 78.276 of this chapter) at 130° F.

* * * * *

PART 78—SHIPPING CONTAINER SPECIFICATIONS

SUBPART I—SPECIFICATIONS FOR TANK CARS

1. Amend the Preface to Subpart I (15 F. R. 8485, Dec. 2, 1950) (49 CFR Part 78 Subpart I Preface, 1950 Rev.) to read as follows:

§ 78.256 *Preface.* (a) The following specifications for tanks are minimum requirements. Changes or modifications thereof may be made effective by further order of the Commission. See § 71.4 of this chapter reading as follows:

Changes in tank car specifications. (a) Proposals of changes in or additions to specifications for tanks to be mounted on or to form part of a car and to be classified as tank cars should be submitted to the Secretary, Mechanical Division, Association of American Railroads, for thorough investigation and consideration by its Committee on Tank Cars, that Committee to report its recommendations, together with objections offered to its proposals, with explanations and reasons for desired approval thereof, through said Secretary to the Commission, and such reports may be submitted to the Bureau of Explosives, as circumstances appear to warrant, for comments and suggestions before appropriate action by the Commission.

(b) Wherever the word "approved" is used in this subpart, it refers to procedure covered in § 71.5 of this chapter reading as follows:

Procedure covering tank car construction. (a) Complete detailed prints of new or improved types of tank car tanks and detailed prints or samples of new or improved types of equipment therefore should be submitted to the Secretary, Mechanical Division, Association of American Railroads, for thorough investigation and laboratory tests of samples by its Committee on Tank Cars.

(b) When in the opinion of the Committee such tanks or equipment therefore are in full compliance with effective specifications of the Commission and no increase in hazard is involved, their use should be permitted.

(c) When in the opinion of the Committee such tanks or equipment therefore are in full compliance with effective specifications of the Commission and a possible increase in hazard is involved, service trials should be agreed upon among interested parties before more extended use is permitted.

(d) When in the opinion of the Committee such tanks or equipment therefore do not comply with effective specifications of the Commission and service trials are desirable, approval by the Commission of the conditions of such trials must be obtained.

(e) Prompt reports of the Tank Car Committee on these matters should be made to the Commission through said Mechanical Division Secretary and should include objections to proposed modifications of the specifications and advice of any extensions of pending investigations found necessary. The Committee's expert opinions thus obtained will be given due weight by the Commission in determining appropriate final action to be taken. The merits of controversies arising under the foregoing procedure will be considered and changes in or additions to the specifications, or authorizations of service trials, will be made by the Commission as conditions appear to warrant.

2. Amend § 78.257 paragraph (a) (15 F. R. 8485, Dec. 2, 1950) (49 CFR 78.257, 1950 Rev.) to read as follows:

§ 78.257 *General.* (a) All tanks built on or after August 31, 1956, must comply with all applicable requirements of the specifications in this subpart, and maintained in accordance with § 73.31 of this chapter.

3. Amend entire § 78.258 (15 F. R. 8485, Dec. 2, 1950) (49 CFR 78.258, 1950 Rev.) to read as follows:

§ 78.258 *Specification changes.* (a) Specifications previously published are not applicable for cars and tanks mounted thereon built on or after August 31, 1956. Specifications contained herein are for new cars, or tanks therefore, built on or after August 31, 1956.

4. Amend entire § 78.259 (17 F. R. 9840, Nov. 1, 1952) (17 F. R. 4298, May 10, 1952) (15 F. R. 8485, 8486, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.259) to read as follows:

§ 78.259 *Applications for approval.* (a) Applications for approval of new or modified designs, specifications or materials for tanks and equipment therefore shall be submitted to the Secretary, Mechanical Division, Association of American Railroads for appropriate committee action.

(b) Applications for approval of designs to be used in constructing cars under these specifications, shall be submitted to said Secretary.

(c) To propose a new specification for tank cars, an applicant should furnish information to show the necessity to justify a new classification. This data should give:

(1) The method of handling the loading and unloading of the lading.

(2) The nature and properties of the lading.

(3) The reason why any existing classification cannot be used.

(d) An application for construction of cars to any new classification, and the proposed specification covering same, may be filed with the Secretary, Mechanical Division, Association of American Railroads; but construction shall be held in abeyance until after the specification has been approved. The Subcommittee on Specifications of the Committee on Tank Cars shall complete a review of the proposed specification at its earliest convenience and report its recommendations to the Committee on Tank Cars for prompt consideration. Construction or repairs not in accord with currently effective regulations is cause for rejection of an application, therefore the Committee on Tank Cars should not be asked to approve an application on any other basis other than currently effective regulations. This procedure is not intended to discourage new design within the scope of currently effective regulations; but to prevent premature construction in anticipation of the adoption of a new tank car classification.

5. Amend entire § 78.260 (15 F. R. 8486, Dec. 2, 1950) (49 CFR 78.260, 1950 Rev.) to read as follows:

§ 78.260 *Tank car heater systems; approval of designs.* (a) Application for approval of designs of heater systems for installation in new or existing tanks shall be submitted to said Secretary and approval by appropriate action obtained before cars with heater systems are placed in service.

6. Amend entire § 78.261 (15 F. R. 8486, Dec. 2, 1950) (49 CFR 78.261, 1950 Rev.) to read as follows:

§ 78.261 *Specification for interior heater systems*—(a) *Heater pipes and fittings.* (1) When threaded joints are used, pipes shall not be less than two inch "extra strong" lap-welded steel, seamless steel, electric-resistance-welded steel, or wrought iron to current A. A. R. specifications. When the joints are welded, instead of threaded, to give them the same bending strength as the body of the pipes, the thickness of wall may be reduced 20 percent. Joints shall be made by threaded wrought couplings, forged unions, bolted flanges, or welding. A minimum number of connections shall be used.

(2) Interior heater systems shall be made of material not affected by the lading. When materials specified in subparagraph (1) of this paragraph are not suitable on account of effect of lading, other approved materials shall be used.

(b) *Return bends.* Cast iron, malleable iron or cast steel return bends shall not be used. Return bends shall be forged or made by bending the pipe. Cast or forged manifolds of approved design are permissible.

(c) *Application to tank.* All piping shall be properly secured to permit necessary expansion and contraction.

(d) *Inlets and outlets.* (1) Inlets and outlets shall be so located in any portion of dome, shell or heads of tanks or steam jacketed outlet as to afford proper self-drainage of the entire system.

(2) Breakage groove required on steam jacketed outlets.

(3) When ends of steam coils are not attached to manifold or steam jacketed outlet chamber they shall be attached to pads or reinforcements. Pads or reinforcements shall be attached to tank or dome to comply with specifications for type of car involved. Outside pipe connections to steam coils shall not be integral part of the interior coils and shall be screwed or welded, or both, into outside of pads or reinforcements.

(4) Both inlets and outlets of heater pipes shall be equipped with valve cock, cap or plug. Caps and plugs shall be secured by chain.

(e) *Compartment and multiple-tank cars.* The heater system for each compartment of a compartment tank or each tank of a multiple tank car shall be treated as a separate tank and comply with the requirements contained herein.

(f) *Tests and retests.* (1) The heater system of each tank shall be tested with hydrostatic pressure and shall be tight at 200 pounds per square inch.

(2) Similar tests shall be made after renewals of any part of heater system.

(3) Each time tanks having heater systems are retested as prescribed in the specifications therefor, the heater system shall also be retested and be tight at a hydrostatic pressure of 200 pounds per square inch.

(g) *Reports.* Reports shall be made on Certificate of Construction when heater systems are installed, including report of initial test. Reports of retests of tanks shall include retests of heater systems.

7. Cancel entire § 78.262 (15 F. R. 8486, Dec. 2, 1950) (49 CFR 78.262, 1950 Rev.)

8. Cancel entire § 78.263 (15 F. R. 8486 to 8488, Dec. 2, 1950) (49 CFR 78.263, 1950 Rev.)

9. Amend entire § 78.265 (19 F. R. 3263, June 3, 1954) (18 F. R. 3144, June 2, 1953) (17 F. R. 9840, Nov. 1, 1952) (15 F. R. 8488, 8489, 8490, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.265) to read as follows:

§ 78.265 *Specification ICC-103; riveted steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.265-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward, and must have at least one expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.265-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.265-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal seam, must be at least 240 pounds per square inch.

§ 78.265-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal riveted seam. (See § 78.265-7 (b).)

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of riveted joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates, including thickness of each plate at rivet seams, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	Inch	Inch	Inch	Inch	Inch
60 inches or under	7/16	¼	5/16	½	5/16	⅜
Over 60 to 78 inches	7/16	5/16	5/16	½	5/16	⅜
Over 78 to 96 inches	½	⅜	5/16	½	5/16	⅜
Over 96 to 112 inches	½	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	½	½	5/16	⅝	5/16	½

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.265-5 (a), must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.265-5 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal seam, including overlaps, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) For tanks without underframe the minimum thickness of bottom sheet must not be less than ⅝ inch.

(g) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inches solid pipe plugs having standard pipe threads.

§ 78.265-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification. When clad plates are used, the rivet heads inside the tank must be clad with the same material or rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.265-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

(b) Tank heads may be made of two plates joined by fusion-welding in accordance with the requirements prescribed by AAR Welding Code Appendix W, except that stress-relieving is not required if heads are heated to not less than 1200 degrees Fahrenheit for pressing. The fusion welded joint for tank heads must be located horizontally.

§ 78.265-7 *Riveting.* (a) For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. All rivets must be driven hot.

(b) All seams formed in the manufacture of the tank and expansion dome proper and the attachment of the expansion dome to the tank must be double riveted. Dome head, manway ring, safety valve flange and bottom outlet nozzle flange may be single or double riveted. Riveted seams and joints must be made metal to metal without interposition of other material, with the exception that the use of 2 liners not to exceed 1 inch in width and ⅛ inch in thickness, placed at an angle across the longitudinal seams between 2 rows of rivets near the internal tank heads on compartment cars to prevent the liquid from passing along the longitudinal seams from one compartment to another while cars are being water tested, will be permissible. The efficiency of double-riveted seams must be at least 70 per cent of the strength of the thinnest plate specified in § 78.265-4 (a) (1), (b) and (c). The efficiency of single riveted seams must be at least 45 per cent of the strength of the thinnest plate specified in § 78.265-4 (a) (1), (b) and (c). Use of rivets of less than ⅝-inch nominal diameter not permissible on any part of tank or attachments.

§ 78.265–8 *Calking.* (a) All seams, including those formed by attachment of expansion dome and other external projections, must be calked both inside and outside, except that inside calking of the seam formed by attachment of expansion dome to tank when tank sheet is not cut out to full diameter of the dome, is not required and outside calking of seams formed by attachment of all external projections, except the expansion dome, is not required. Split calking is prohibited.

(b) The edges of plates at all riveted seams must be beveled so that the angle of the calking edges will be between 60 and 70 degrees with the flat surface of the plate. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch.

(c) Electric seal welding of inside calking edges only, in whole or in part, using shielded arc type of electrode, is permitted on new or existing equipment, provided the weld bead has a ⅛ inch minimum to 3/16 inch maximum throat thickness. Qualification of welders must comply with requirements prescribed by AAR Welding Code Appendix W. Welding clad material to edge of clad plates inside of tank is permitted. Other methods of covering edges of clad plates, if approved, may be used.

§ 78.265–9 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

§ 78.265–10 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome of at least 2 percent of the total capacity of the tank and dome combined, except that when safety valve or safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety valve or safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner. Dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

(d) The entire dome assembly, dome head assembly, or dome header assembly, including the nozzles and flanges, as required, may be built up by fusion welding, providing this detail is fabricated and stress-relieved in accordance with the requirements prescribed by AAR Welding Code Appendix W.

§ 78.265–11 *Closures for manway.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway rings and covers must be of cast, forged or fabricated steel, malleable iron or other malleable metals.

(c) All covers not hinged must be attached to outside of the dome head by at least ⅜ inch chain or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.265–12 *Gauging, bottom outlet valve operating rod, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Not specification requirements. When installed, these devices including their valves or fittings must be of approved design and made of materials not subject to rapid deterioration by the lading. These devices including their valves or fittings must be provided with a protective housing. Unloading pipes must be securely anchored within the tank. Provision must be made for closing pipe connections of valves.

§ 78.265–13 *Bottom outlets.* (a) The bottom outlet, when installed, must be made of metal not subject to rapid deterioration by the lading, be of approved construction and be provided with a valve at its upper end and a liquid-tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle construction must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be of cast, fabricated or forged metal.

(d) To provide for the attachment of standard unloading connections, the bottom of the main portion of the outlet nozzle or some fixed attachment thereto, must have external Unified Form Threads, 4 threads to the inch.

(e) For outlet nozzles that project 6 inches or more from the shell of tank a "V" groove must be cut (not cast) in the upper part of outlet nozzle at a point immediately below lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve seat must be readily accessible or removable for repairs, including grinding.

(h) The valve operating mechanism must have means for compensating for variation in the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to car by at least ⅜ inch chain or its equivalent, except that outlet closure plugs may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.265–14 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design mounted on expansion dome. Total valve discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank or compartment thereof, of 6,650 gallons capacity or less, and 2 safety valves for each tank or compartment thereof, of over 6,650 gallons capacity.

(c) Each safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor tight at 28 pounds per square inch. (For tolerance see § 78.265–19.)

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped must have one safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not for Flammable Liquids".

§ 78.265–15 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be riveted in place and calked to comply with conditions prescribed in §§ 78.265–7 and 78.265–8, or applied by other approved means of at least equal strength and efficiency. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.265–16 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

§ 78.265–17 *Closures for openings.* (a) All plugs must be solid of good grade cast iron or equivalent with standard pipe thread of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.265-18 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.265-19 *Tests of safety valves.* (a) Each valve must be tested, before being put into service, by attaching to an air line and applying pressure. The valve must not leak below 28 pounds pressure. The valve must open at the pressure prescribed in § 78.265-14 (c), with a tolerance of plus or minus 3 pounds.

§ 78.265-20 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103 in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (1) of this paragraph.

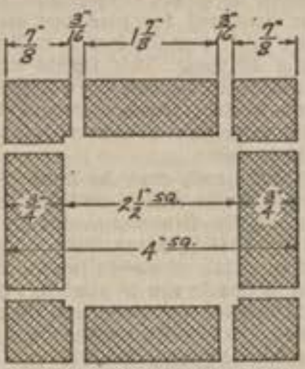
(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the builder does not complete the fabrication of the tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) Identification mark, illustrated herein, for approved manway closure must be stenciled on each side of dome, or jacket if lagged, in line with the ladders and in a color contrasting to color of dome.



Manhole Closure Identification Mark
(Reduced size)

(8) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity, followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(9) Tanks made of clad plates must be stenciled on the tank, or jacket if lagged, "(naming material) ______ clad tank". Lined tanks must be stenciled on the tank, or jacket if lagged, "(naming material) ______ lined tanks". These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.265-21 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of alterations of or additions to tanks or equipment from original design and construction, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

10. Amend entire § 78.266 (19 F. R. 3263, June 3, 1954) (18 F. R. 3144, June 2, 1953) (15 F. R. 8490, 8491, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.266) to read as follows:

§ 78.266 *Specification ICC-103A; riveted steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.266-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward and must have at least one expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.266-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.266-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal seam, must be at least 240 pounds per square inch.

§ 78.266-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section.

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal riveted seam.

(See § 78.266-7 (b).)

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section.

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of riveted joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates, including thickness of each plate at rivet seams, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	¼	5/16	½	5/16	⅜
Over 60 to 78 inches	7/16	5/16	5/16	½	5/16	⅜
Over 78 to 96 inches	½	⅜	5/16	½	5/16	⅜
Over 96 to 112 inches	½	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	½	½	5/16	⅝	5/16	½

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.266–5 (a), must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate described in § 78.266–5 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal seam, including overlaps, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head, this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inches solid pipe plugs having standard pipe threads.

§ 78.266–5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets must be of the same quality as used for steam boilers and other pressure vessels, and be made of steel to an approved specification. When clad plates are used, the rivet heads inside the tank must be clad with the same material or rivets may be of the same material as the cladding provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.266–6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

(b) Tank heads may be made of two plates joined by fusion welding in accordance with the requirements prescribed by AAR Welding Code Appendix W, except that stress-relieving is not required if heads are heated to not less than 1,200 degrees Fahrenheit, for pressing. Fusion-welded joint for tank heads must be located horizontally.

§ 78.266–7 *Riveting.* (a) For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. All rivets must be driven hot.

(b) All seams formed in the manufacture of the tank and expansion dome proper and the attachment of the expansion dome to the tank must be double riveted. Dome head, manway ring, safety vent flange and bottom washout nozzle flange may be single or double riveted. Riveted seams and joints must be made metal to metal without interposition of other material with the exception that the use of two liners not to exceed one inch in width and 1/16 inch in thickness, placed at an angle across the longitudinal seams between two rows of rivets near the internal tank heads on compartment cars to prevent the liquid from passing along the longitudinal seams from one compartment to another while cars are being water tested, will be permissible. The efficiency of double riveted seams must be at least 70 per cent of the thinnest plate specified in § 78.266–4 (a) (1), (b) and (c). The efficiency of single riveted seams must be at least 45 per cent of the strength of the thinnest plate specified in § 78.266–4 (a) (1), (b) and (c). Use of rivets less than ⅝ inch nominal diameter not permissible on any part of tank or attachments.

§ 78.266–8 *Calking.* (a) All seams, including those formed by attachment of expansion dome and other external projections, must be calked both inside and outside, except that inside calking of the seams formed by attachment of expansion dome to tank, when tank sheet is not cut out to full diameter of dome, is not required and outside calking of seams formed by attachment of all external projections, except the expansion dome, is not required. Split calking is prohibited.

(b) The edges of plates at all riveted seams must be beveled so that the angle of the calking edges will be between 60 and 70 degrees with the flat surface of the plate. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch.

(c) Electric seal welding of inside calking edges only, in whole or in part, using shielded arc type of electrode, is permitted on new or existing equipment, provided the weld bead has a ⅛ inch minimum to 3/16 inch maximum throat thickness. Qualification of welders must comply with requirements of AAR Welding Code Appendix W. Welding clad material to edge of clad plates inside of tank is permitted. Other methods of covering edges of clad plates, if approved, may be used.

§ 78.266–9 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.266–10 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 1 percent of the total capacity of the tank and dome combined, except that when safety vent applied to side of dome, the effective capacity of dome must be measured from top of safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided with nipples extending inside the tank at least 1 inch and the joint between the base of the dome and the tank shell must be sealed on the inside in an approved manner.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

(d) The entire dome assembly, dome head assembly, or dome header assembly, including the nozzles and flanges, as required, may be built up by fusion-welding providing this detail is fabricated and stress-relieved in accordance with the requirements prescribed in AAR Welding Code Appendix W.

§ 78.266–11 *Closures for manways.* (a) The manway cover must be bolted type, bolted and hinged type or other approved types and designed to provide a secure closure of the manway.

(b) Manway rings and covers must be of cast, forged or fabricated steel, malleable iron or other malleable metals.

(c) Chains, if used to attach manway cover to outside of dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.266–12 *Gauging, venting, loading and unloading, and air inlet devices extending through dome of tank.* (a) Not specification requirements. When installed these devices must be of approved design made of material not subject to rapid deterioration by the lading and be tightly closed. Protective housing not required except as prescribed in paragraph (b) of this section. Unloading pipes must be securely anchored within the tank.

(b) When the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices, including valves, must be of an approved design, and be provided with a protective housing. Provision must be made for closing pipe connections of the valves.

§ 78.266-13 *Bottom outlets.* (a) Bottom outlet is prohibited, but tank may be equipped with a bottom washout nozzle of metal not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements:

(b) The construction and closure of the bottom washout nozzle must be such that it is liquid tight and should the nozzle be broken, loss of contents of the tank will not occur.

(c) The extreme projection of the bottom washout nozzle must be at least 12 inches above the top of rail.

(d) Bottom washout may be of cast, fabricated, or forged metal.

(e) The closure of the washout nozzle must be equipped with a ¾ inch solid screw plug. Plug must be secured to car structure or washout chamber by at least a ¼ inch chain.

(f) For bottom washout nozzles that project 6 inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(g) The flange on the bottom washout nozzle must be of a thickness which will prevent distortion of the inside closure seat or closure casting by any change in contour of the shell, resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the washout nozzle will occur at or below the "V" groove.

(h) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

§ 78.266-14 *Safety vents.* (a) Safety valves are prohibited, but a safety vent must be applied.

(b) Each tank or compartment thereof must be equipped with one safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement.

§ 78.266-15 *Fixtures, reinforcements and attachments not otherwise specified.* (a) All attachments to tank and dome must be riveted in place and calked to comply with conditions prescribed in §§ 78.266-7 and 78.266-8 or applied by other approved means of at least equal strength and efficiency. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.266-16 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

§ 78.266-17 *Closures for openings.* (a) All plugs must be solid of good grade cast iron or equivalent with standard pipe thread, of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank heads must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.266-18 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Test of interior heater systems. Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.266-19 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103A in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only" or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(7) Tanks made of clad plates must be stenciled on the tank, or jacket if lagged, "(naming material) __________ clad tank". Lined tanks must be stenciled on the tank, or jacket if lagged, "(naming material) __________ lined tank". These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.266-20 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of alterations of or additions to tanks or equipment from original design and construction, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Report of retests must be rendered to the Bureau of Explosives and car owner.

11. Amend entire § 78.267 (19 F. R. 3263, June 3, 1954) (18 F. R. 3144, June 2, 1953) (15 F. R. 8491, 8492, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.267) to read as follows:

§ 78.267 *Specification ICC-103B; rubber lined riveted steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.267-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward, and must have at least one expansion dome with manway and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have two heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.267-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of the tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.267-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal seam, must be at least 240 pounds per square inch.

§ 78.267-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal riveted seam.

(See § 78.267-7 (b).)

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section.

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of riveted joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates, including thickness of each plate at rivet seams, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	¼	5/16	½	5/16	⅜
Over 60 to 78 inches	7/16	5/16	5/16	½	5/16	⅜
Over 78 to 96 inches	½	⅜	5/16	½	5/16	⅜
Over 96 to 112 inches	½	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	½	½	5/16	⅝	5/16	½

(c) Tanks must be lined with rubber at least 5/32 inch thick, except that over all rivets and tank seams the lining must be double thickness. The lining must overlap at least 1½ inches at all edges, which must be straight and be beveled to an angle of approximately 45 degrees. A rubber reinforcement pad at least 4½ feet square and at least ½ inch thick must be applied by vulcanizing to the lining on bottom of tank directly under the dome. The edges of pad must be beveled to an angle of approximately 45 degrees. An opening in this pad for sump is permitted. No rubber shall be under tension when applied except that due to conformation over rivet heads. Interior of tank must be free from scale, oxidation, moisture, and all foreign matter during the lining operation.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal seam, including overlaps, above the cradle.

(e) For tanks built for one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When the capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch in thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped drain hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plug having standard pipe threads.

§ 78.267-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification.

(d) Each tank or each compartment thereof, must be lined with an acid-resisting rubber, vulcanized or bonded directly or otherwise attached to the metal tank, to provide a non-porous laminated lining.

(e) All external projections must be made of materials specified herein.

§ 78.267-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

(b) Tank heads may be made of two plates joined by fusion-welding in accordance with the requirements prescribed by AAR Welding Code Appendix W, except that stress-relieving is not required if heads are heated to not less than 1200 degrees Fahrenheit for pressing. The fusion welded joint for tank heads must be located horizontally.

§ 78.267-7 *Riveting.* (a) For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. All rivets must be driven hot.

(b) All seams formed in the manufacture of the tank and expansion dome proper and the attachment of the expansion dome to the tank must be double riveted. Dome head, manway ring, safety vent flange and sump flange may be single or double riveted. Riveted seams and joints must be made metal to metal without interposition of other material with the exception that the use of two liners not to exceed 1 inch in width and 1/16 inch in thickness, placed at an angle across the longitudinal seams between two rows of rivets near the internal tank heads on compartment cars to prevent the liquid from passing along the longitudinal seams from one compartment to another while car is being water tested, will be permissible. The efficiency of double riveted seams must be at least 70 percent of the strength of the thinnest plate specified in § 78.267-4 (a) (1) and (b). The efficiency of single riveted seams must be at least 45 percent of the thinnest plate specified in § 78.267-4 (a) (1) and (b). Use of rivets less than ⅝ inch nominal diameter not permitted on any part of tank or attachments. All rivet heads on the inside of tank must be of uniform size, button head or similar shape, and the under surface of the heads must be driven tight against shell.

§ 78.267-8 *Calking.* (a) All seams, including those formed by attachment of expansion dome and other external projections, must be calked both inside and outside, except that inside calking of the seam formed by attachment of expansion dome to tank, when tank sheet is not cut out to full diameter of dome, is not required and outside calking of seams formed by attachment of all external projections, except the expansion dome, is not required. When the opening in tank shell is cut out to full diameter of dome, inside calking of seam formed by attachment of expansion dome to tank is required. All projecting edges of plates, castings, and rivet heads on inside of tank must be rounded and free from fins and other irregular projections. Castings must be free from porosity. Split calking is prohibited.

(b) The edges of plates at all riveted seams must be beveled so that the angle of the calking edges will be between 60 and 70 degrees with the flat surface of the plate. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch.

§ 78.267-9 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

§ 78.267-10 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 1 per cent of the total capacity of the tank and dome combined, except that when safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening for manway, before lining, must be at least 18 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and designed for pressure on concave side.

(d) The entire dome assembly, dome head assembly, including the nozzle and flanges, as required, may be built up by fusion-welding, provided this detail is fabricated and stress-relieved in accordance with the requirements prescribed by A. A. R. Welding Code Appendix "W".

§ 78.267-11 *Closures for manway.* (a) The manway cover must be of approved type, and designed to provide a secure closure of the manway.

(b) Manway cover must be made of a suitable metal. The top, bottom and edge of manway cover must be rubber covered as prescribed in § 78.267-4 (c) and § 78.267-5 (d). Through bolt holes must be lined with rubber at least ⅛ inch in thickness. Cover made of metal not affected by the lading need not be rubber covered. All rubber surfaces on outside of tank or fittings must be protected with an age resisting coating. Manway flanges must be of cast, forged or fabricated steel, malleable iron or other malleable metals.

(c) Chains, if used to attach manway cover to outside of the dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between manway cover and manway flange and between manway cover and any appurtenances mounted thereon, must be made tight against leakage.

§ 78.267-12 *Gauging, venting, loading and unloading, and air inlet devices extending through dome of tanks.* (a) When installed, these devices must be of an approved design and must be tightly closed. Protective housing not required, except when the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents. These devices including the valves must be of an approved design and be provided with a protective housing. Unloading pipes must be securely anchored within the tank.

(b) When gauging, venting, loading and unloading and air inlet devices and their closures are made of material affected by the lading they must have all surfaces rubber covered as prescribed in §§ 78.267-4 (c) and 78.267-5 (d). Interior pipes of these devices must be supported at their lower end.

§ 78.267-13 *Bottom outlets.* (a) Bottom outlet is prohibited. Bottom sump is permissible. If used it must be of cast, fabricated or forged metal.

§ 78.267-14 *Safety vents.* (a) Safety valves are prohibited, but a safety vent must be applied.

(b) Each tank, or compartment thereof, must be equipped with one safety vent, lined with rubber at least ⅛ inch in thickness, having an inside diameter of at least 1¾ inches after lining, closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement.

§ 78.267-15 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be riveted in place and calked to comply with conditions prescribed in §§ 78.267-7 and 78.267-8, or applied by other approved means of at least equal strength and efficiency. Interior heater systems, when installed, must be made of material not affected by the lading. They must be constructed so that the breaking off of their external connections will not cause leakage of contents of tank. All surfaces or attachments exposed to the lading must be rubber covered as prescribed in § 78.267-4 (c) and § 78.267-5 (d). Attachments made of metal not affected by the lading need not be rubber covered.

§ 78.267-16 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

§ 78.267-17 *Closures for openings.* (a) Closures for all openings must have all surfaces exposed to the lading rubber covered or be made of metal not affected by the lading.

§ 78.267-18 *Tests of tanks.* (a) Each tank must be tested, before rubber lining is applied, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety vents, must be in place while test is made. After tank is rubber lined, no further tests are required. If tanks are to be lagged, the test of tank must be made before lagging is applied.

(b) Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.267-19 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103B in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) "Rubber-lined tank—pressure test not required", stenciled on tank, or jacket if lagged, instead of record of test of tank.

(5) Date on which interior heater systems were last tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity, followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.267-20 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of alterations of or additions to tanks and equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

(b) Before a tank car tank not originally built under this specification is lined with rubber, a report certifying that the tank and its equipment have been brought into compliance with the tank requirements of specification ICC-103B must be furnished by car owner to the party who is to apply the rubber lining. A copy of this report, together with report in approved form certifying that tank has been lined in compliance with all requirements of this specification, must be furnished by party lining the tank to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads.

12. Cancel entire § 78.268 (19 F. R. 3263, June 3, 1954) (15 F. R. 8492, 8493, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.268).

13. Amend entire § 78.269 (17 F. R. 9840, Nov. 1, 1952) (15 F. R. 8493, 8494, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.269) to read as follows:

§ 78.269 *Specification ICC-104; lagged riveted steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.269-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least one expansion dome with manway and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have two heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.269-2 *Lagging.* (a) The tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.269-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal seam, must be at least 240 pounds per square inch.

§ 78.269-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal riveted seam.

(See § 78.269-7 (b).)

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section.

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure in pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of riveted joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates, including minimum thickness of each plate at rivets seams, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	9/16	3/8
Over 60 to 78 inches	7/16	5/16	5/16	1/2	9/16	3/8
Over 78 to 96 inches	1/2	3/8	5/16	1/2	9/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	9/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	9/16	1/2

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.269-5 (a), must be as prescribed in the above table. Where the cladding material does not have the physical properties at least equal to that of the base plate prescribed in § 78.269-5 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal seam, including overlaps, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) For tanks without underframe the minimum thickness of bottom sheet must not be less than ⅝ inch.

(g) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head, a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head, this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.269-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of materials to an approved specification.

(c) Rivets must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification. When clad plates are used, the rivet heads inside the tank must be clad with the same material or rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.269-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

(b) Tank heads may be made of two plates joined by fusion welding in accordance with the requirements prescribed by the AAR Welding Code Appendix W, except that stress relieving is not required if heads are heated to not less than 1200 degrees Fahrenheit for pressing. The fusion-welded joint for tank heads must be located horizontally.

§ 78.269-7 *Riveting.* (a) For computing rivet areas, the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. All rivets must be driven hot.

(b) All seams formed in the manufacture of the tank and expansion dome proper and the attachment of the expansion dome to the tank must be double riveted. Dome head, manway ring, safety valve flange and bottom outlet nozzle flange may be double riveted. Riveted seams and joints must be made metal to metal without interposition of other material, with the exception that the use of two liners not to exceed 1 inch in width and 1/16 inch in thickness, placed at an angle across the longitudinal seams between two rows of rivets near the internal tank heads on compartment cars to prevent the liquid from passing along the longitudinal seams from one compartment to another while cars are being water tested, will be permissible. The efficiency of double riveted seams must be at least 70 percent of the strength of the thinnest plate specified in § 78.269–4 (a) (1), (b) and (c). The efficiency of single riveted seams must be at least 45 percent of the thinnest plate specified in § 78.269–4 (a) (1), (b) and (c). Use of rivets less than ⅝ inch nominal diameter not permissible on any part of tank or attachments.

§ 78.269–8 *Calking.* (a) All seams including those formed by attachments of expansion dome and other external projections, must be calked both inside and outside, except that inside calking of the seam formed by attachment of expansion dome to tank when tank sheet is not cut out to full diameter of dome, is not required and outside calking of seams formed by attachment of all external projections, except expansion dome, is not required. Split calking is prohibited.

(b) The edges of plates at all riveted seams must be beveled so that the angle of the calking edges will be between 60 and 70 degrees with the flat surface of the plate. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch.

(c) Electric seal welding of inside calking edges only, in whole or in part, using shielded arc type of electrode, is permitted on new or existing equipment, provided the weld bead has a ⅛ inch minimum to 3/16 inch maximum throat thickness. Qualification of welders must comply with requirements prescribed by AAR Welding Code Appendix W. Welding clad material to edge of clad plates inside of tank is permitted. Other methods of covering edges of clad plates, if approved, may be used.

§ 78.269–9 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.269–10 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome of at least 2 per cent of the total capacity of the tank and dome combined, except that when safety valve or safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety valve or safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and designed for pressure on concave side.

(d) The entire dome assembly, dome head assembly, or dome header assembly, including the nozzles and flanges, as required, may be built up by fusion welding, provided this detail is fabricated and stress-relieved in accordance with the requirements prescribed by AAR Welding Code Appendix W.

§ 78.269–11 *Closures for manways.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway rings and covers must be of cast, forged or fabricated steel, malleable iron or other malleable metals.

(c) All covers not hinged must be attached to outside of the dome head by at least a ⅜ inch chain or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.269–12 *Gauging, bottom outlet valve operating rod, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Venting, loading and unloading devices of approved design must be installed.

(b) Gauging, bottom outlet valve operating rod and air inlet devices are not specification requirements.

(c) When installed, these devices, including their valves and fittings must be of approved design made of metal not subject to rapid deterioration by the lading. These devices, including their valves and fittings, must be protected from accidental injury by means of a cast or fabricated housing with cover securely attached. Drain holes permitted. Unloading pipe must be securely anchored within the tank. Provision must be made for closing pipe connections of valves.

§ 78.269–13 *Bottom outlets.* (a) The bottom outlet, when installed, must be made of metal not subject to rapid deterioration by the lading, be of approved construction, and be provided with a valve at its upper end and a liquid tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle construction must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be of cast, fabricated or forged metal.

(d) To provide for the attachment of unloading connections, the bottom of the main portion of the outlet nozzle or some fixed attachment thereto, must have external Unified Form Threads, 4 threads to the inch.

(e) For outlet nozzles that project 6 inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of outlet valve nozzle at a point immediately below lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve and seat must be readily accessible or removable for repairs, including grinding.

(h) The valve operating mechanism must have means for compensating for variation if the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in the stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to car by at least ⅜ inch chain or its equivalent, except that outlet closure plugs may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.269–14 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design mounted on expansion dome. Total valve discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank, or compartment thereof, of 6,650 gallons capacity or less, and two safety valves for each tank, or compartment thereof, of over 6,650 gallons capacity.

(c) Each safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor tight at 28 pounds per square inch. (For tolerance see § 78.269–19 (a).)

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, Class B, need not be equipped with safety valves, but if not so equipped, must have one safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not For Flammable Liquids".

§ 78.269–15 *Fixtures, reinforcements and attachments not otherwise specified.*

(a) All attachments to tank and dome must be riveted in place and calked to comply with conditions prescribed in §§ 78.269-7 and 78.269-8, or applied by other approved means of at least equal strength and efficiency. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.269-16 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

§ 78.269-17 *Closures for openings.* (a) All plugs must be solid of good grade cast iron or equivalent with standard pipe threads, of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.269-18 *Tests of tanks.* (a) Each tank must be tested, before being put into service and before lagging is applied, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.269-19 *Tests of safety valves.* (a) Each valve must be tested, before being put into service, by attaching to an air line and applying pressure. The valve must not leak below 28 pounds per square inch pressure. The valve must open at the pressure prescribed in § 78.269-14 (c) with a tolerance of plus or minus 3 pounds.

§ 78.269-20 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-104 in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (1) of this paragraph.

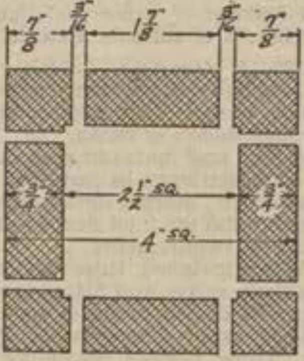
(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases were the tank builder does not complete the fabrication of the tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Date on which the interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(7) Identification mark, illustrated herein, for approved manway closure must be stenciled on each side of dome, or jacket if lagged, in line with the ladders and in a color contrasting to color of dome.



Manhole Closure Identification Mark
(Reduced size)

(8) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity, followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(9) Tanks made of clad plates must be stenciled on the jacket "(naming material) ________ clad tank". Lined tanks must be stenciled on the jacket "(naming material) ________ lined tanks". These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.269-21 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of alterations of or additions to tanks or equipment from original design and construction, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

14. Amend entire § 78.270 (18 F. R. 3144, June 3, 1954) (17 F. R. 9840, Nov. 1, 1952) (17 F. R. 7287, Aug. 9, 1952) (15 F. R. 8494, 8495, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.270) to read as follows:

§ 78.270 *Specification ICC-105A100; lagged riveted steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed by § 78.259 (a), (b), (c) and (d).

§ 78.270-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.270-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for shell.

(b) Before lagging is applied, the tank surface and the entire surface of the metal jacket shall be given a protective coating.

§ 78.270-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal seam, must be at least 495 pounds per square inch.

§ 78.270-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal riveted seam.

(See § 78.270-7 (b).)

(b) The minimum thickness of plates, including thickness of each plate at rivet seams, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Tank heads
57 inches or under	9/16	9/16	11/16
Over 57 to 96 inches	5/8	5/8	3/4

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.270–6 (a) must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.270–6 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal seam, including overlaps, above the cradle.

§ 78.270–5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.270–6 *Material.* (a) All plates for tank and manway nozzle must be made of open-hearth boiler plate flange quality steel to an approved specification. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets must be of the same quality as used for steam boilers and other pressure vessels, and be made of steel to an approved specification. When clad plates are used, the rivet heads inside the tank must be clad with the same material or rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.270–7 *Tank heads.* (a) Tank heads must be of approved contour and designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches.

§ 78.270–8 *Riveting.* (a) For computing rivet areas the effective diameter of a driven rivet in the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. All rivets must be driven hot.

(b) All seams formed in the manufacture of the tank and the attachment of manway nozzle to tank must be double-riveted. Riveted seams and joints must be made metal to metal without interposition of other material. The efficiency of the double-riveted seams must be at least 70 per cent of the strength of the thinnest plate.

§ 78.270–9 *Preparation for calking and calking.* (a) The edges of plates at all riveted seams must be beveled so that the angle of the calking edges will be between 60 and 70 degrees with the flat surface of the plate. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch.

(b) All seams must be calked on the inside and outside. Split calking is prohibited.

(c) Electric seal welding of inside calking edges only, in whole or in part, using shielded arc type of electrode is permitted on new or existing equipment, provided the weld bead has a ⅛ inch minimum to 3/16 inch maximum throat thickness. Qualification of welders must comply with requirements prescribed with AAR Welding Code Appendix "W". Welding clad material to edges of clad plates inside of tank is permitted. Other methods of covering edges of clad plates, if approved, may be used.

§ 78.270–10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.270–11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of cast, forged or rolled steel at least 18 inches inside diameter having approved wall thicknesses and dimensions.

(b) Manway cover must be of forged or rolled steel at least 2¼ inches thick, machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather-proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.270–12 *Venting, loading and unloading, gauging and sampling devices and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved plugs, chained or otherwise fastened to prevent misplacement.

(b) Interior pipes of the loading and unloading valves, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve, and thermometer well are not specification requirements. When installed, they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved attachments that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks used in transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

§ 78.270–13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of metal not subject to rapid deterioration by lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 75 pounds per square inch.

(b) The safety valve must be set to open at a pressure of not exceeding 75 pounds per square inch. (For tolerance see § 78.270–18 (a).)

§ 78.270–14 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than anchorage and those mounted on manway cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved method.

§ 78.270–15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe threads, and of metal not subject to rapid deterioration by the lading.

§ 78.270–16 *Tests of tanks.* (a) Each tank must be tested, before lagging is applied, by completely filling the tank and manway nozzle with water, or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 100 pounds per square inch. The tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves, must be in place while test is made.

§ 78.270–17 *Tests of exterior heater systems.* (a) Not a specification requirement.

§ 78.270–18 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 75 pounds per square inch and be vapor-tight at 60 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.270-19 *Marking.* (a) Each tank must be marked, thus certifying that tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A100 in letters and figures at least 3/8 inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least 3/8 inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least 3/8 inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least 3/8 inch high into the metal of the tank immediately below the marks specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity, followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket "(naming material) ____ clad tank". Lined tanks must be stenciled on the jacket "(naming material) _____ lined tank". These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.270-20 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of alterations of or additions to tanks or equipment from original design and construction, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

15. Cancel entire § 78.271 (18 F. R. 3144, June 2, 1953) (17 F. R. 9840, 9841, Nov. 1, 1952) (16 F. R. 11783, Nov. 21, 1951) (15 F. R. 8495 to 8497, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.271).

16. Cancel entire § 78.272 (18 F. R. 3144, June 2, 1953) (17 F. R. 9841, Nov. 1, 1952) (15 F. R. 8497, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.272).

17. Cancel entire § 78.273 (18 F. R. 3145, June 2, 1953) (17 F. R. 9841, Nov. 1, 1952) (15 F. R. 8497, 8498, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.273).

18. Cancel entire § 78.274 (18 F. R. 3145, June 2, 1953) (17 F. R. 9841, Nov. 1, 1952) (15 F. R. 8498, Dec. 2, 1950) (49 CFR 1950 Rev., 1954, Supp., 78.274).

19. Amend entire § 78.275 (20 F. R. 4420, June 23, 1955) (15 F. R. 8498 to 8500, Dec. 2, 1950) (49 CFR 78.275, 1950 Rev.) to read as follows:

§ 78.275 *Specification ICC-106A500; forged lap-welded steel tanks, or ICC 106A500-X forge-welded steel tanks with fusion welded longitudinal barrel sections, to be mounted on a car.* (a) Wherever the word "approved" is in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.275-1 *Type and general requirements.* (a) Tanks built under this specification must be cylindrical, with heads designed convex inward. All openings must be located in the heads. Tanks must be securely attached to car structure in such a manner that they may be removed for filling by the consignor and emptying by the consignee. Each tank must have a capacity of at least 1,600 pounds and not more than 2,600 pounds of water.

(b) The tanks must be fabricated by approved methods.

(c) For tanks made in foreign countries, a chemical analysis of material and all tests as specified must be carried out within the limits of the United States under the supervision of a competent and disinterested inspector.

§ 78.275-2 *Thickness of plates.* (a) The wall thickness of tanks must be at least 13/32 inch and must be such that at the test pressure the calculated fiber stress in wall of tank will not be in excess of the following.

Shell wall having longitudinal seam:	*Maximum fiber stress, pounds per square inch*
Water gas lap-welded	17,500
Fusion-welded	15,750

as calculated by the following formula:

$$S=\frac{P(1.3D^2+0.4d^2)}{D^2-d^2}$$

where

P=interior test pressure in pounds per square inch;
D=outside diameter in inches;
d=inside diameter in inches;
S=wall stress in pounds per square inch.

(b) Tank heads must be of a thickness sufficient to meet the test requirements of § 78.275-12 (a), (b) and (c), and provide for the threading of openings therein as prescribed in § 78.275-4 (b).

§ 78.275-3 *Material.* (a) All plates for tank must be make of uniform open-hearth steel of good welding quality, free from cracks, laminations, or other defects injurious to the finished tank, and have an elastic limit of not more than 45,000 pounds per square inch and an elongation of at least 20 percent in 8 inches; a test specimen must also bend cold through 180 degrees flat on itself without cracking on the outside of the bent portion; the tensile and bend test specimens must be taken from the finished rolled material, and there must be at least one tensile test and one bend test on specimens from each heat. Chemical analysis must show maximum content per cent not greater than as follows:

Carbon—0.20.
Phosphorus—0.04.
Sulphur—0.05.

(b) All plates must have their heat number and the name or brand of the manufacturer legibly stamped on them at the rolling mill.

§ 78.275-4 *Tank heads.* (a) The heads must be hot pressed, flanging and dishing being done in one heat, so as to make a straight flange having a minimum length of 4 inches and a radius of dish not greater than the diameter of the tank. They must be inserted into the tank shell with flange extending outward and must have a snug drive fit into the shell.

(b) Threads for openings in tank heads for valves and vents must be American Standard taper, tapped to gauge, clean cut, even and without checks to insure tight joints.

§ 78.275-5 *Welding.* (a) All joints and seams other than the longitudinal seam for which alternate requirements are prescribed in paragraph (b) of this section, must be made by the water gas lap-weld process, or other lap-weld processes, which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce equivalent or superior results. All joints and seams other than those provided for in paragraph (b) of this section, must be thoroughly hammered or rolled to insure perfect welds. The flanges of the heads must be forged lap-welded to the shell and then crimped inwardly toward the axis line at least 1 inch on the radius. Welding and crimping must be accomplished in 1 heat.

(b) Alternate welding procedure: Longitudinal seams may be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints fabricated by means of fusion welding must be in accordance with the requirements of AAR Welding Code, Appendix W.

§ 78.275–6 *Heat treatment.* (a) Each finished tank, before being subjected to hydrostatic test, must be uniformly and properly heat-treated by heating to a temperature of at least 1,200 degrees Fahrenheit to remove any undue strains due to processes of manufacture.

§ 78.275–7 *Tank mounting.* (a) The manner in which the tanks are mounted on and securely attached to the car structure must be approved.

§ 78.275–8 *Protective housing and cover.* (a) Valves and other closures of openings in tank heads, except fusible plug vents, must be protected against accidental injury by a detachable cast or, pressed housing at least 3/16 inch thick, which much not project beyond the flanged ends of the tank and must be securely fastened to the tank head. Housing must be provided with an opening having an area equal to the total safety valve or vent discharge area.

(b) The upper head of tanks mounted vertically on the car structure must be completely covered by a light metal cover designed to exclude moisture, cinders, and other foreign matter, and to be displaced by pressure of gas discharged through safety valves or vents.

§ 78.275–9 *Venting, loading and unloading valves.* (a) These valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 500 pounds per square inch without leakage. The valves must be screwed directly into tank heads or attached to tank heads by other approved methods. Provision must be made for closing pipe connections of the valves.

§ 78.275–10 *Safety valves or vents.* (a) Unless prohibited for type of service in which tank is used, the tank must be equipped with one or more safety valves or vents of approved type, made of metal not subject to rapid deterioration by the lading and be screwed directly into tank heads or attached to tank heads by other approved methods. The total valve or vent discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 3/4 of the test pressure; when safety vents of the fusible plug type are used, the required discharge capacity must be available in each head.

(b) Tank mounted vertically on the car structure must have safety valves, or vents of the frangible disc type, which must be located on the upper head.

(c) Safety valves must be set to open and vents of the frangible disc type must function at a pressure not exceeding 375 pounds per square inch. Vents of the fusible plug type must function at a temperature not exceeding 175 degrees Fahrenheit. (For tolerance see § 78.275–13.)

§ 78.275–11 *Fixtures.* (a) Siphon pipes and their couplings on the inside of the tank head and lugs on the outside of the tank head for attaching the valve protection housing may be fusion-welded in place in accordance with A. A. R. Welding Code Appendix W, provided they are properly heat-treated in accordance with § 78.275–6 (a) at the time the entire tank is heat-treated. All other fixtures and appurtenances, except as provided in §§ 78.275–7, 78.275–8, 78.275–9 and 78.275–10 are prohibited.

§ 78.275–12 *Tests of tank.* (a) After heat-treatment tanks must be subjected to hydrostatic test in a water jacket, or by other accurate method, operated so as to obtain reliable data. No tank shall have been subjected previously to internal pressure within 100 pounds of the test pressure. Each tank must be tested to 500 pounds per square inch. Pressure must be maintained for 30 seconds and sufficiently longer to insure complete expansion of tank. Pressure gauge must permit reading to accuracy of one percent. Expansion gauge must permit reading of total expansion to accuracy of one percent. Expansion must be recorded in cubic centimeters.

(b) Permanent volumetric expansion must not exceed 10 per cent of total volumetric expansion at test pressure.

(c) Each finished tank must be subjected to interior air pressure test of at least 100 pounds per square inch under conditions favorable to detection of any leakage. No leaks shall appear.

(d) Repairs of leaks detected in manufacture or test must be made by the same process as employed in manufacture of tank. Calking, soldering, or similar repairing is prohibited.

§ 78.275–13 *Tests of safety valves and vents.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 375 pounds per square inch and be vapor tight at 300 pounds per square inch which limiting pressures must not be affected by any auxiliary closure or other combination.

(b) For safety vents of the frangible disc type. A sample of the disc used must burst at a pressure of not exceeding 375 pounds per square inch and be vapor-tight at 300 pounds per square inch.

(c) For safety vents of the fusible plug type. A sample of the fusible plugs used must function at a temperature of not exceeding 175 degrees Fahrenheit, and be vapor tight at a temperature of 130 degrees Fahrenheit.

§ 78.275–14 *Alterations and maintenance of tanks.* (a) All prescribed markings on tanks must be kept legible. Copy of the said markings, in letters and figures of the prescribed size stamped on a brass plate secured to the tank, is authorized. Markings must not be changed except as follows:

(1) By application of additional marks not affecting the test pressure or water capacity. These must not obliterate previously applied marks.

(2) By application of test pressure marks, or alteration of such marks, to indicate a reduced test pressure. This is authorized only for tanks that have not failed in the 5-year test.

(3) By change of serial numbers or ownership marks, or both. A report must be filed with the Bureau of Explosives in sufficient detail so that previous serial number and ownership mark can be determined for each tank, arranged by lot numbers or by consecutive serial numbers.

§ 78.275–15 *Marking.* (a) Each tank must be plainly and permanently marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be stamped into the metal of one head or chime, in letters and figures at least 3/8 inch high, as follows:

(1) When longitudinal seam is water gas lap-welded, the mark must be ICC–106A500. When longitudinal seam is fusion-welded, the mark must be ICC–106A500–X.

(2) Serial number immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Inspector's official mark immediately below the stamped mark specified in subparagraph (2) of this paragraph.

(4) Name, mark (other than trademark), or initials of company or person for whose use the tanks are being made, which must be recorded with the Bureau of Explosives.

(5) Date of tank test (month and year), such as 1–54 for January 1954, so placed that date of subsequent tests may easily be added thereto.

(6) Water capacity—0000 Pounds.

§ 78.275–16 *Inspection and reports.* (a) Purchaser of tanks must provide for inspection by a competent inspector as follows:

(1) The inspector must carefully inspect all plates from which tanks are to be made, and records pertaining thereto, and plates which do not comply with the requirements of this specification must be rejected.

(2) The inspector must secure complete certified records, including chemical analyses and physical tests on samples taken from each heat of steel used in the manufacture of the plate.

(3) The inspector must report capacity in pounds of water and tare weight of each tank and the minimum thickness of tank wall noted.

(4) The inspector must make such inspection as may be necessary to see that all the requirements of this specification are fully complied with, must see that the finished tanks are properly heat-treated, and must witness all air and hydrostatic tests.

(5) The inspector must stamp his official mark on each accepted tank imme-

diately below the serial number, and make certified report (See paragraph (b) of this section) to the builder, to the company or person for whose use the tanks are made, to the builder of the car structure on which the tanks are to be mounted, if any, to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads.

(b) Inspector's report required herein must be in the following form:

(Place) ------------------------
(Date) ------------------------

STEEL TANKS

It is hereby certified that drawings were submitted for these tanks under A. A. R. Application for Approval No. ---- and approved by the A. A. R. Committee on Tank Cars under date of ------------------------.
Built for ---------------------- Company
Location at ------------------------------
Built by ---------------------- Company
Location at ------------------------------
Consigned to ------------------ Company
Location at ------------------------------
Quantity ---------------------------------
Size --------------- inches outside diameter
by -------------- inches long.

Marks stamped into the head or chime of the tank are:

Specification ICC ------------------------
Serial numbers -------- to ------- inclusive
Inspector's mark --------------------------
Owner's mark ------------------------------
Test date ---------------------------------
Water capacity (see Record of Hydrostatic Tests).
Tare weights (Yes or No) (See Record of Hydrostatic Tests).
These tanks were made by process of --------

The steel used was identified as indicated by the attached list showing the serial number of each tank, followed by the heat number of the plate, head, and bottom used in the tank.

The steel used was verified as to chemical analysis and record thereof is attached hereto. The heat numbers were stamped into the metal.

All material, such as plates, billets, and seamless tubing, was inspected and each tank was inspected both before and after closing in the ends; all that was accepted was found free from seams, cracks, laminations, and other defects which might prove injurious to the strength of the tank. The processes of manufacture and heat treatment of tanks were supervised and found to be efficient and satisfactory.

The tank walls were measured and the minimum thickness noted was -------- inch. The outside diameter was determined by a close approximation to be -------- inches. The wall stress was calculated to be ------ pounds per square inch under an internal pressure of -------- pounds per square inch.

Hydrostatic tests, bend and tensile tests of material, and other tests, as prescribed in this specification were made in the presence of the inspector and all material and tanks accepted were found to be in compliance with the requirements of this specification. Records thereof are attached hereto.

I hereby certify that all of these tanks proved satisfactory in every way and comply with the requirements of Interstate Commerce Commission.

Specification No. --------
(Signed) ------------------------
(Inspector)

(Place) ------------------------
(Date) ------------------------

RECORD OF CHEMICAL ANALYSIS OF STEEL FOR TANKS

Numbered ---------- to ---------- inclusive
Size -------------- inches outside diameter
by -------------------------- inches long
Made by ---------------------- Company
For ---------------------------- Company

Heat No	Chemical analysis						
	C	P	S	Si	Mn	Ni	Cr
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----

The analyses were made by:
(Signed) ------------------------
(Place) ------------------------
(Date) ------------------------

RECORD OF HYDROSTATIC TESTS ON TANKS

Numbered ---------------------- inclusive
Size -------------- inches outside diameter
by -------------------------- inches long
Made by ---------------------- Company
For ---------------------------- Company

Serial Nos. of tanks tested	Actual test pressure (pounds per square inch)	Total expansion (cc.)[1]	Permanent expansion (cc.)[1]	Percent ratio of permanent expansion to total expansion	Tare weight pounds[2]	Capacity in pounds of water at 60° F.
----------	-------	-----	-----	-------	-----	-----
----------	-------	-----	-----	-------	-----	-----
----------	-------	-----	-----	-------	-----	-----
----------	-------	-----	-----	-------	-----	-----

[1] If the tests are made by a method involving the measurement of the amount of liquid forced into the tank by the test pressure then the basic data, on which the calculations are made, such as the pump factors, temperature of liquid, coefficient of compressibility of liquid, etc., must also be given.

[2] Do not include protective housing and cover but state whether with or without valves.

(Signed) ------------------------

(c) Before a tank built under this specification is placed in service, the builder must furnish to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in proper form, certifying that the tank and its equipment comply with all the requirements of this specification including information as to the serial numbers, dates of test, and ownership marks on the tanks.

(d) In the event the owner of the tank instead of the builder elects to furnish the appurtenances such as valve protection caps, loading and unloading valves, and safety valves or vents of the frangible disc or fusible plug type, the owner must furnish to the Bureau of Explosives and to the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that these appurtenances comply with all the requirements of this specification.

(e) In case of alterations of or additions to tanks or equipment from original design and construction or of repairs, there must be furnished to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in detail of the repairs, alterations, or additions made to each tank covered by a particular application, showing the serial number of each tank involved and stating that heat treatment called for by the particular type of repair authorized has been performed and that after repairs, alterations, or additions, the tests prescribed in § 78.275-12 were made, results of hydrostatic tests reported, and tanks marked as prescribed by retest table No. 2 of § 73.31 of this chapter.

20. Amend entire § 78.276 (15 F. R. 8501, Dec. 2, 1950) (49 CFR 78.276, 1950 Rev.) to read as follows:

§ 78.276 *Specification ICC-106A800; forged lap-welded steel tanks, or ICC-106A800-X; forge-welded steel tanks with fusion-welded longitudinal barrel sections, to be mounted on a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.276-1 *Type and general requirements.* (a) Tanks built under this specification must be cylindrical, with heads designed convex inward. All openings must be located in the heads. Tanks must be securely attached to car structure in such a manner that they may be removed for filling by the consignor and emptying by the consignee. Each tank must have a capacity of at least 1,600 pounds and not more than 2,600 pounds of water.

(b) The tanks must be fabricated by approved methods.

(c) For tanks made in foreign countries, a chemical analysis of material and all tests as specified must be carried out within the limits of the United States under the supervision of a competent and disinterested inspector.

§ 78.276-2 *Thickness of plates.* (a) The wall thickness of tanks must be at least $\frac{13}{32}$ inch and must be such that at the test pressure the calculated fiber stress in wall of tank will not be in excess of the following:

Shell wall having longitudinal seam:	*Maximum fiber stress, pounds per square inch*
Water gas lap-welded	17,500
Fusion-welded	15,750

as calculated by the following formula:

$$S=\frac{P(1.3D^2+0.4d^2)}{D^2-d^2}$$

where

P = interior test pressure in pounds per square inch;
D = outside diameter in inches;
d = inside diameter in inches;
S = wall stress in pounds per square inch.

(b) Tank heads must be of a thickness sufficient to meet the test requirements of § 78.276-12 (a), (b) and (c), and provide for the threading of openings therein as prescribed in § 78.276-4 (b).

§ 78.276-3 *Material.* (a) All plates for tank must be made of uniform open-hearth steel of good welding quality, free from cracks, laminations, or other defects injurious to the finished tank, and have an elastic limit of not more than 45,000 pounds per square inch and an elongation of at least 20 per cent in 8 inches; a test specimen must also bend cold through 180 degrees flat on itself without cracking on the outside of the bent portion; the tensile and bend test specimens must be taken from the finished rolled material, and there must be at least one tensile test and one bend test on specimens from each heat. Chemical analysis must show maximum content percent not greater than as follows:

Carbon—0.20.
Phosphorus—0.04.
Sulphur—0.05.

(b) All plates must have their heat number and the name or brand of the manufacturer legibly stamped on them at the rolling mill.

§ 78.276-4 *Tank heads.* (a) The heads must be hot pressed, flanging and dishing being done in one heat, so as to make a straight flange having a minimum length of 4 inches and a radius of dish not greater than the diameter of the tank. They must be inserted into the tank shell with flange extending outward and must have a snug drive fit into the shell.

(b) Threads for openings in tank heads for valves and vents must be American Standard taper, tapped to gauge, clean cut, even and without checks to insure tight joints.

§ 78.276-5 *Welding.* (a) All joints and seams, other than the longitudinal seam for which alternate requirements are prescribed in paragraph (b) of this section, must be made by the water gas lap-weld process, or other lap-weld processes, which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce equivalent or superior results. All joints and seams, other than those provided for in paragraph (b) of this section, must be thoroughly hammered or rolled to insure perfect welds. The flanges of the heads must be forged lap-welded to the shell and then crimped inwardly toward the axis line at least 1 inch on the radius. Welding and crimping must be accomplished in 1 heat.

(b) *Alternate welding procedure.* Longitudinal seams may be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints fabricated by means of fusion welding must be in accordance with the requirements of AAR Welding Code, Appendix W.

§ 78.276-6 *Heat treatment.* (a) Each finished tank, before being subjected to hydrostatic test, must be uniformly and properly heat-treated by heating to a temperature of at least 1,200 degrees Fahrenheit to remove any undue strains due to processes of manufacture.

§ 78.276-7 *Tank mounting.* (a) The manner in which the tanks are mounted on and securely attached to the car structure must be approved.

§ 78.276-8 *Protective housing and cover.* (a) Valves and other closures of openings in tank heads, except fusible plug vents, must be protected against accidental injury by a detachable cast or pressed housing at least 3/16 inch thick, which must not project beyond the flanged ends of the tank and must be securely fastened to the tank head. Housing must be provided with an opening having an area equal to the total safety valve or vent discharge area.

§ 78.276-9 *Venting, loading and unloading valves.* (a) These valves must be of approved type, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 800 pounds per square inch without leakage. The valves must be screwed directly into tank heads or attached to tank heads by other approved methods. Provision must be made for closing the pipe connection of the valves.

§ 78.276-10 *Safety valves or vents.* (a) Unless prohibited for type of service in which tank is used, the tank must be equipped with one or more safety valves or vents of approved type, made of metal not subject to rapid deterioration by the lading and be screwed directly into tank heads or attached to tank heads by other approved methods. The total valve or vent discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of ¾ of the test pressure; when safety vents of the fusible plug type are used, the required discharge capacity must be available in each head.

(b) Tanks mounted vertically on the car structure must have safety valves, or vents of the frangible disc type, which must be located on the upper head.

(c) Safety valves must be set to open and vents of the frangible disc type must function at a pressure of not exceeding 600 pounds per square inch. Vents of the fusible plug type must function at a temperature not exceeding 175 degrees Fahrenheit. (For tolerance see § 78.276-13.)

§ 78.276-11 *Fixtures.* (a) Siphon pipes and their couplings on the inside of the tank head and lugs on the outside of the tank head for attaching the valve protection housing may be fusion-welded in place in accordance with A. A. R. Welding Code Appendix W, provided they are properly heat-treated in accordance with § 78.276-6 (a) at the time the entire tank is heat-treated. All other fixtures and appurtenances, except as provided in § 78.276-7, § 78.276-8, § 78.276-9 and § 78.276-10, are prohibited.

§ 78.276-12 *Tests of tanks.* (a) After heat-treatment tanks must be subjected to hydrostatic test in a water jacket, or by other accurate method, operated so as to obtain reliable data. No tank shall have been subjected previously to internal pressure within 100 pounds of the test pressure. Each tank must be tested to 800 pounds per square inch. Pressure must be maintained for 30 seconds and sufficiently longer to insure complete expansion of tank. Pressure gauge must permit reading to accuracy of one per cent. Expansion gauge must permit reading of total expansion to accuracy of one per cent. Expansion must be recorded in cubic centimeters.

(b) Permanent volumetric expansion must not exceed 10 percent of total volumetric expansion at test pressure.

(c) Each finished tank must be subjected to interior air pressure test of at least 100 pounds per square inch under conditions favorable to detection of any leakage. No leaks shall appear.

(d) Repairs of leaks detected in manufacture or test must be made by the same process as employed in manufacture of tank. Calking, soldering, or similar repairing is prohibited.

§ 78.276-13 *Tests of safety valves and vents.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 600 pounds per square inch and be vapor tight at 480 pounds per square inch which limiting pressures must not be affected by any auxiliary closure or other combination.

(b) For safety vents of the frangible disc type. A sample of the disc used must burst at a pressure of not exceeding 600 pounds per square inch and be vapor tight at 480 pounds per square inch.

(c) For safety vents of the fusible plug type. A sample of the fusible plugs used must function at a temperature of not exceeding 175 degrees Fahrenheit, and be vapor tight at a temperature of 130 degrees Fahrenheit.

§ 78.276-14 *Alterations and maintenance of tanks.* (a) All prescribed markings on tanks must be kept legible. Copy of the said markings, in letters and figures of the prescribed size stamped on a brass plate secured to the tank, is authorized. Markings must not be changed except as follows:

(1) By application of additional marks not affecting the test pressure or water capacity. These must not obliterate previously applied marks.

(2) By application of test pressure marks, or alteration of such marks, to indicate a reduced test pressure. This is authorized only for tanks that have not failed in the 5-year test.

(3) By change of serial numbers or ownership marks, or both. A report must be filed with the Bureau of Explosives in sufficient detail so that previous serial number and ownership mark can be determined for each tank, arranged by lot numbers or by consecutive serial numbers.

§ 78.276-15 *Marking.* (a) Each tank must be plainly and permanently marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be stamped into the metal of one head or chime, in letters and figures at least 3/8 inch high, as follows:

(1) When longitudinal seam is water gas lap-welded, the mark must be ICC-106A800. When longitudinal seam is fusion-welded, the mark must be ICC-106A800-X.

(2) Serial number immediately below the stamped marked specified in subparagraph (1) of this paragraph.

(3) Inspector's official mark immediately below the stamped mark specified in subparagraph (2) of this paragraph.

(4) Name, mark (other than trademark), or initials of company or person for whose use the tanks are being made, which must be recorded with the Bureau of Explosives.

(5) Date of tank test (month and year), such as 1-54 for January, 1954, so placed that date of subsequent tests may easily be added thereto.

(6) Water capacity—0000 Pounds.

§ 78.276-16 *Inspection and reports.* (a) Purchaser of tanks must provide for inspection by a competent inspector as follows:

(1) The inspector must carefully inspect all plates from which tanks are to be made, and records pertaining thereto, and plates which do not comply with the requirements of this specification must be rejected.

(2) The inspector must secure complete certified records, including chemical analyses and physical tests on samples taken from each heat of steel used in the manufacture of the plate.

(3) The inspector must report capacity in pounds of water and tare weight of each tank and the minimum thickness of tank wall noted.

(4) The inspector must make such inspection as may be necessary to see that all the requirements of this specification are fully complied with, must see that the finished tanks are properly heat-treated, and must witness all air and hydrostatic tests.

(5) The inspector must stamp his official mark on each accepted tank immediately below the serial number, and make certified report (see paragraph (b) of this paragraph) to the builder, to the company or person for whose use the tanks are being made, to the builder of the car structure on which the tanks are to be mounted, if any, to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads.

(b) Inspector's report required herein must be in the following form:

(Place) ------------------------
(Date) ------------------------

STEEL TANKS

It is hereby certified that drawings were submitted for these tanks under A. A. R. Application for Approval No. ---------- and approved by the A. A. R. Committee on Tank Cars under date of ----------------------

----

Built for ---------------------- Company
Location at --------------------------
Built by ---------------------- Company
Location at --------------------------
Consigned to ------------------ Company
Location at --------------------------
Quantity ------------------------------
Size ------------- inches outside diameter
by ---------------------- inches long

Marks stamped into the head or chime of the tank are:

Specification ICC ----------------------
Serial numbers -------- to -------- inclusive
Inspector's mark------------------------
Owner's mark --------------------------
Test date ------------------------------
Water capacity (See Record of Hydrostatic Tests)
Tare weights (Yes or No). (See Record of Hydrostatic Tests)
These tanks were made by process of--------

The steel used was identified as indicated by the attached list showing the serial number of each tank, followed by the heat number of the plate, head, and bottom used in the tank.

The steel used was verified as to chemical analysis and record thereof is attached hereto. The heat numbers were stamped into the metal.

All material, such as plates, billets, and seamless tubing, was inspected and each tank was inspected both before and after closing in the ends; all that was accepted was found free from seams, cracks, laminations, and other defects which might prove injurious to the strength of the tank. The processes of manufacture and heat treatment of tanks were supervised and found to be efficient and satisfactory.

The tank walls were measured and the minimum thickness noted was ------ inch. The outside diameter was determined by a close approximation to be ------ inches. The wall stress was calculated to be ------ pounds per square inch under an internal pressure of ------ pounds per square inch.

Hydrostatic tests, bend and tensile tests of material, and other tests, as prescribed in this specification were made in the presence of the inspector and all material and tanks accepted were found to be in compliance with the requirements of this specification. Records thereof are attached hereto.

I hereby certify that all of these tanks proved satisfactory in every way and comply with the requirements of Interstate Commerce Commission Specification No. --------

(Signed) ------------------------
(Inspector)
(Place) ------------------------
(Date) ------------------------

RECORD OF CHEMICAL ANALYSIS OF STEEL FOR TANKS

Numbered --------- to --------- inclusive
Size ------------- inches outside diameter
by ---------------------- inches long
Made by ---------------------- Company
For -------------------------- Company

Heat No.	Chemical analysis						
	C	P	S	Si	Mn	Ni	Cr
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----
----------	----	----	----	----	----	----	----

The analyses were made by:

(Signed) ------------------------
(Place) ------------------------
(Date) ------------------------

RECORD OF HYDROSTATIC TESTS ON TANKS

Numbered --------- to --------- inclusive
Size ------------- inches outside diameter
by ---------------------- inches long
Made by ---------------------- Company
For -------------------------- Company

Serial Nos. of tanks tested	Actual test pressure (pounds per square inch)	Total expansion (cc.)[1]	Permanent expansion (cc.)[1]	Percent ratio of permanent expansion to total expansion	Tare weight pounds[2]	Capacity in pounds of water at 60° F.
----------	------	------	------	------	------	------
----------	------	------	------	------	------	------
----------	------	------	------	------	------	------

[1] If the tests are made by a method involving the measurement of the amount of liquid forced into the tank by the test pressure then the basic data, on which the calculations are made, such as the pump factors, temperature of liquid, coefficient of compressibility of liquid, etc., must also be given.

[2] Do not include protective housing and cover but state whether with or without valves.

(Signed) ------------------------

(c) Before a tank built under this specification is placed in service, the builder must furnish to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in proper form, certifying that the tank and its equipment comply with all the requirements of this specification including information as to the serial numbers, dates of test, and ownership marks on the tanks.

(d) In the event the owner of the tank instead of the builder elects to furnish the appurtenances such as valve protection caps, loading and unloading valves, and safety valves or vents of the frangible disc or fusible plug type, the owner must furnish to the Bureau of Explosives and to the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that these appurtenances comply with all the requirements of this specification.

(e) In case of alterations of or additions to tanks or equipment from original design and construction or of repairs, there must be furnished to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in detail of the repairs, alterations, or additions made to each tank covered by a particular application, showing the serial number of each tank involved and stating that heat treatment called for by the particular type of repair authorized has been performed and that after repairs, alterations, or additions, the tests prescribed in § 78.276-12 were made, results of hydrostatic tests reported, and tanks marked as prescribed by retest table No. 2 of § 73.31 of this chapter.

21. Amend entire § 78.277 (20 F. R. 955 to 958, Feb. 15, 1955) (49 CFR 78.277, 1950 Rev.) to read as follows:

§ 78.277 *Specification ICC-107A ****; seamless steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed by § 78.259 (a), (b), (c) and (d).

§ 78.277-1 *Type and general requirements.* (a) Tanks built under this specification must be hollow forged or drawn in one piece. Forged tanks must be machined inside and outside before ends are necked-down and, after necking-down, the ends must be machined to size on the ends and outside diameter. Machining not necessary on inside or outside of seamless steel tubing, but required on ends after necking down.

(b) Tanks must be fabricated by approved methods.

(c) For tanks made in foreign countries, chemical analysis of material and all tests as specified must be carried out within the limits of the United States under supervision of a competent and disinterested inspector; in addition to which, provisions in § 78.277-17 (b) and (c) must be carried out at the point of manufacture by a recognized inspection bureau with principal office in the United States.

(d) The terms "marked end" and "marked test pressure" used throughout this specification are defined as follows:

(1) "Marked end" is that end of the tank on which marks prescribed in § 78.277-16 are stamped.

(2) "Marked test pressure" is that pressure in pounds per square inch which is indicated by the figures substituted for the **** in the marking ICC-107-A **** stamped on the marked end of tank.

(e) The gas pressure at 130 degrees Fahrenheit in the tank must not exceed $\frac{7}{10}$ of the marked test pressure of the tank.

§ 78.277-2 *Thickness of wall.* (a) Minimum thickness of wall of each finished tank must be such that a pressure equal to $\frac{7}{10}$ of the marked test pressure of the tank, the calculated fiber stress in pounds per square inch at inner wall of tank multiplied by 3.0 will not exceed the tensile strength of any specimen taken from the tank and tested as prescribed in § 78.277-5 (b). Minimum wall thickness shall be ¼ inch.

(b) Calculations to determine the maximum marked test pressure permitted to be marked on the tank must be made by the formula:

$$P=\frac{10S(D^2-d^2)}{7(D^2+d^2)}$$

where

P=maximum marked test pressure permitted;

$$S=\frac{U}{3.0}$$

where

U=tensile strength of that specimen which shows the lower tensile strength of the two specimens taken from the tank and tested as prescribed in § 78.277-5 (b).

3.0=Factor of safety.

$\frac{D^2-d^2}{D^2+d^2}$=The smaller value obtained for this factor by the operations specified in paragraph (c) of this section.

(c) Measure at one end, in a plane perpendicular to the longitudinal axis of the tank and at least 18 inches from that end before necking down:

d=Maximum inside diameter (inches) for the location under consideration; to be determined by direct measurement to an accuracy of 0.05 inch.

t=Minimum thickness of wall for the location under consideration; to be determined by direct measurement to an accuracy of 0.001 inch.

Take $D=d+2t$.

Calculate the value of

$$\frac{D^2-d^2}{D^2+d^2}$$

Make similar measurements and calculation for a corresponding location at the other end of the tank.

Use the smaller result obtained, from the foregoing, in making calculations prescribed in paragraph (b) of this section.

§ 78.277-3 *Material.* (a) Tanks must be made from open-hearth or electric steel of uniform quality. Material must be free from seams, cracks, laminations, or other defects injurious to finished tank. If not free from such defects, the surface may be machined or ground to eliminate these defects. Forgings and seamless tubing for bodies of tanks must be stamped with heat numbers.

(b) Steel must conform to the following requirements as to chemical composition:

	Carbon steel (percent)	Alloy steel (percent)
Carbon, not over	0.55	[1] 0.50
Manganese, not over	.80	[1] 1.65
Phosphorus:		
Acid, not over	.05	.05
Basic, not over	.04	.04
Sulphur:		
Acid, not over	.06	.06
Basic, not over	.05	.05
Sum of manganese and carbon [1] not over	----------	2.10

[1] Steel containing other alloying elements may be used if approved.

(1) For instructions as to the obtaining and checking of chemical analysis, see § 78.277-17 (b) (3).

§ 78.277-4 *Heat treatment.* (a) Each necked-down tank must be uniformly and properly heat treated. Heat treatment must consist of annealing or normalizing and drawing. Heat treatment involving the use of liquid quenching medium is prohibited, except under special approval. All scale must be removed from inside and outside of tank to an extent sufficient to allow proper inspection.

(b) To check uniformity of heat treatment, Brinell hardness tests must be made at 18-inch intervals on the entire longitudinal axis. The hardness must not vary more than 35 points in the length of the tank. No hardness tests need be taken within 12 inches from point of head to shell tangency.

§ 78.277-5 *Physical tests.* (a) Physical tests must be made on 2 test specimens 0.505 inch in diameter within 2-inch gauge length, taken 180 degrees apart, 1 from each ring section cut from each end of each forged or drawn tube before necking down, or 1 from each prolongation at each end of each necked-down tank. These test specimen ring sections or prolongations must be heat treated with the necked-down tank which they represent. The width of the test specimen ring section must be at least its wall thickness. Only when diameters and wall thickness will not permit removal of 0.505 by 2-inch tensile test bar, laid in the transverse direction, may test bar cut in the longitudinal direction be substituted. When the thickness will not permit obtaining a 0.505 specimen, then the largest diameter specimen obtainable in the longitudinal direction shall be used. Specimens shall have bright surface and a reduced section. When 0.505 specimen is not used the gauge length shall be a ratio of 4 to 1 length to diameter.

(b) Elastic limit as determined by extensometer, must not exceed 70 percent of tensile strength. Determination shall be made at cross head speed of not more than 0.125 inch per minute with an extensometer reading to 0.0002 inch. The extensometer shall be read at increments of stress not exceeding 5,000 pounds per square inch. The stress at which the strain first exceeds

$$\frac{\text{stress (pounds per square inch)}}{\text{30,000,000 (pounds per square inch)}}$$

plus 0.005 (inch per inch) shall be recorded as the elastic limit.

(1) Elongation must be at least 18 percent and reduction of area at least 35 percent.

NOTE 1: Upon approval, the ratio of elastic limit to ultimate strength may be raised to permit use of special alloy steels of definite composition that will give equal or better physical properties than steels herein specified.

§ 78.277-6 *Openings in tanks.* (a) Each end must be closed by a cover made of forged steel. Covers must be secured to ends of tank by through bolts or studs not entering interior of tank. Covers must be of a thickness sufficient to meet test requirements of § 78.277-10 and to compensate for the openings closed by attachments prescribed herein.

(1) It is also provided that each end may be closed by internal threading to accommodate an approved fitting. The internal threads as well as the threads on fittings for these openings shall be clean cut, even, without checks, and tapped to gauge. Taper threads are required and must be of a length not less than as specified for American Standard Taper pipe threads. External threading of an approved type shall be permissible on the internal threaded ends.

(b) Joints between covers and ends and between cover and attachments must be of approved form and made tight against vapor or liquid leakage by means of a confined gasket of suitable material.

§ 78.277-7 *Tank mounting.* (a) The manner in which tanks are supported on and securely attached to car structure must be approved.

§ 78.277-8 *Protective housing.* (a) Safety devices, and loading and unloading valves on tanks must be protected from accidental injury by approved metal housing, arranged so it may be readily opened to permit inspection and adjustment of safety devices and valves, and securely locked in closed position. Housing must be provided with opening having an opening equal to twice the total discharge area of safety device enclosed.

§ 78.277-9 *Loading and unloading valves.* (a) Loading and unloading valve or valves must be mounted on the cover or threaded into the marked end of tank. These valves must be of approved type, made of metal not subject to rapid deterioration by lading or in service, and must withstand without leakage a pressure equal to the marked test pressure of tank. Provision must be made for closing service outlet of valves.

§ 78.277-10 *Safety devices.* (a) Tank must be equipped with one or more safety devices of approved type and discharge area, mounted on the cover or threaded into the non-marked end of the tank. If fittings are mounted on a cover, they must be of the flanged type, made of metal not subject to rapid deterioration by lading or in service. Total discharge capacity must be such that, with tank filled with air at pressure equal to 70 percent of the marked test pressure of tank, discharge capacity will be sufficient to reduce air pressure to 30 percent of the marked test pressure within 3 minutes after safety device opens.

(b) Safety devices must open at pressure not exceeding the marked test pressure of tank and not less than $\frac{7}{10}$ of marked test pressure. (For tolerance for safety relief valves, see § 78.277-14 (a).)

(c) Cars used for the transportation of flammable gases must have the safety devices equipped with an approved ignition device.

§ 78.277-11 *Fixtures.* (a) Attachments, other than those mounted on tank covers or serving as threaded closures for the ends of the tank, are prohibited.

§ 78.277-12 *Tests of tanks.* (a) After heat-treatment, tanks must be subjected to hydrostatic tests in a water jacket, or by other accurate method, operated so as to obtain reliable data. No tank shall have been subjected previously to internal pressure greater than 90 percent of the marked test pressure. Each tank must be tested to a pressure at least equal to the marked test pressure of the tank. Pressure must be maintained for 30 seconds, and sufficiently longer to insure complete expansion of tank. Pressure gauge must permit reading to accuracy of one percent. Expansion gauge must permit reading of total expansion to accuracy of one percent. Expansion must be recorded in cubic centimeters.

(b) Permanent volumetric expansion must not exceed 10 percent of the total volumetric expansion at test pressure.

§ 78.277-13 *Handling of tanks failing in tests.* (a) Tanks rejected for failure in any of the tests prescribed may be reheat-treated, and will be acceptable if subsequent to reheat-treatment they are subjected to and pass all of the tests.

§ 78.277-14 *Tests of safety devices.* (a) Safety relief valves must be tested by air or gas before being put into service. Valve must open at pressure not exceeding the marked test pressure of tank and must be vapor-tight at 80 percent of the marked test pressure. These limiting pressures must not be affected by any auxiliary closure or other combination.

(b) For safety devices of frangible disc type, samples of discs used must burst at a pressure not exceeding the marked test pressure of tank and not less than $\frac{7}{10}$ of marked test pressure.

§ 78.277-15 *Alterations and maintenance of tanks.* (a) All prescribed markings on tanks must be kept legible. Markings must not be added to or changed, except as follows:

(1) By application of additional marks not affecting the marked test pressure or water capacity; these marks must not obliterate prescribed marks previously applied.

(2) By application of test pressure marks, or alteration of such marks, to indicate reduced marked test pressure; authorized only for tanks that have not failed in 5-year test.

(3) By change of serial numbers or ownership marks, or both, in which case report, in sufficient detail so that previous serial number and ownership mark can be determined for each tank, and arranged by lot numbers or by consecutive serial numbers, must be filed with the Bureau of Explosives.

§ 78.277-16 *Marking.* (a) Each tank must be plainly and permanently marked, thus certifying that tank complies with all requirements of this specification. These marks must be stamped into the metal of necked-down section of tank at marked end, in letters and figures at least ¼ inch high, as follows:

(1) ICC-107A ****, the **** to be replaced by figures indicating marked test pressure of the tank. This pressure must not exceed the calculated maximum marked test pressure permitted, as determined by the formula in § 78.277-2 (b).

(2) Serial number immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Inspector's official mark immediately below the stamped mark specified in subparagraph (2) of this paragraph.

(4) Name, mark (other than trademark), or initials of company or person for whose use tank is being made, which must be recorded with the Bureau of Explosives.

(5) Date (such as 1-54, for January 1954) of tank test, so placed that dates of subsequent tests may easily be added thereto.

(6) Date (such as 1-54, for January 1954) of latest test of safety relief valve or of frangible disc, required only when tank is used for transportation of flammable gases.

(7) Name of gas for which tank car is being used, stenciled in letters at least 2 inches high on each side of car where they are clearly visible.

§ 78.277-17 *Inspection and reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that tanks and their equipment comply with all the requirements of this specification and including information as to serial numbers, dates of tests, and ownership marks on tanks mounted on car structure. In case of alterations or additions to tanks or equipment from original design and construction, there must be furnished to the same parties a report in detail of the alterations or additions made to each tank covered by a particular application, showing the serial number of each tank involved.

(b) Purchaser of tanks must provide for inspection by a competent inspector as follows:

(1) Inspector must carefully inspect all material and reject that not complying with § 78.277-3.

(2) Inspector must stamp his official mark on each forging or seamless tube accepted by him for use in making tanks, and must verify proper application of heat number to such material by occasional inspections at steel manufacturer's plant.

(3) Inspector must obtain certified chemical analysis of each heat of material.

(4) Inspector must make inspection of inside surface of tanks before necking down, to insure that no seams, cracks, laminations, or other defects exist.

(5) Inspector must fully verify compliance with specification, verify heat treatment of tank as proper; obtain samples for all tests and check chemical analyses; witness all tests; and report minimum thickness of tank wall, maximum inside diameter, and calculated value of D, for each end of each tank as prescribed in § 78.277-2 (c).

(6) Inspector must stamp his official mark on each accepted tank immediately below serial number, and make certified report (See paragraph (c) of this section) to builder, to company or person for whose use tanks are being made, to builder of car structure on which tanks are to be mounted, to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads.

(c) Inspector's report required herein must be in the following form:

(Place) ______________________
(Date) ______________________

STEEL TANKS

It is hereby certified that drawings were submitted for these tanks under A. A. R. Application for Approval ____________ and approved by the A. A. R. Committee on Tank Cars under date of ______________________

Built for ______________________ Company
Location at ______________________
Built by ______________________ Company
Location at ______________________
Consigned to ______________________
Location at ______________________
Quantity ______________________
Length (inches) ______________________
Outside diameter (inches) ______________________

Marks stamped into tank as required in § 78.277-16 are:

ICC-107A ****

NOTE: The marked test pressure substituted for the **** on each tank is shown on Record of General Data on Tanks attached hereto.

Serial numbers _______ to _______ inclusive
Inspector's mark ______________________
Owner's mark ______________________
Test date ______________________
Water capacity (see Record of Hydrostatic Tests).
Tare weights (yes or no) (see Record of Hydrostatic Tests). These tanks were made by process of ______________________
____
____

Steel used was identified as indicated by the attached list showing the serial number of each tank, followed by the heat number.

Steel used was verified as to chemical analysis and record thereof is attached hereto. Heat numbers were stamped into metal.

All material was inspected and each tank was inspected both before and after closing in ends; all material accepted was found free from seams, cracks, laminations, and other defects which might prove injurious to strength of tank. Processes of manufacture and heat-treatment of tanks were witnessed and found to be efficient and satisfactory.

Before necking down ends, each tank was measured at each location prescribed in § 78.277-2 (c) and minimum wall thickness in inches at each location was recorded; maximum inside diameter in inches at each location was recorded; value of D in inches at each location was calculated and recorded; maximum fiber stress in wall at location showing larger value for

$$\frac{D^2+d^2}{D^2-d^2}$$

was calculated for 7/10 the marked test pressure and recorded. Calculations were made by the formula:

$$S=0.7P\frac{(D^2+d^2)}{(D^2-d^2)}$$

Hydrostatic tests, tensile tests of material, and other tests as prescribed in this specification, were made in the presence of the inspector, and all material and tanks accepted were found to be in compliance with the requirements of this specification. Records thereof are attached hereto.

I hereby certify that all of these tanks proved satisfactory in every way and comply with the requirements of Interstate Commerce Commission Specification No. 107A ****

(Signed) ------------------------
(Inspector)

(Place) ------------------------
(Date) ------------------------

RECORD OF CHEMICAL ANALYSIS OF STEEL FOR TANKS

Numbered ---------- to ---------- inclusive
Size -------------- inches outside diameter
by ------------------------ inches long
Built by ------------------------ Company.
For -------------------------- Company.

Heat No.	Tanks represented (Serial Nos.)	Chemical analysis							
		C	Mn	P	S	Si	Ni	Cr	Mo

These analyses were made by:

(Signed) ------------------------
(Inspector)

(Place) ------------------------
(Date) ------------------------

RECORD OF TENSILE TESTS OF MATERIAL IN TANKS

Numbered ---------- to ---------- inclusive
Size ------------------------ inches outside
by ------------------------ inches long
Built by ------------------------ Company
For ---------------------------- Company

Heat No.	Tanks represented by test (Serial Nos.)	Elastic limit (pounds per square inch)	Tensile strength (pounds per square inch)	Elongation (percent in 2 inches)	Reduction of area (percent)

(Signed) ------------------------

(Place) ------------------------
(Date) ------------------------

RECORD OF HYDROSTATIC TESTS ON TANKS

Numbered ---------- to ---------- inclusive
Size ------------------------ inches outside
by ------------------------ inches long
Built by ------------------------ Company
For ---------------------------- Company

Serial Nos. of tanks tested	Actual test pressure (pounds per square inch)	Total expansion (cc.)[1]	Permanent expansion (cc.)[1]	Percent ratio of permanent expansion to total expansion[1]	Tare weight pounds[2]	Capacity in pounds of water at 60° F.

[1] If tests are made by method involving measurement of amount of liquid forced into tank by test pressure, then the basic data on which calculations are made, such as pump factors, temperature of liquid, coefficient of compressibility of liquid, etc., must also be given.

[2] Do not include protective housing, but state whether with or without valves.

(Signed) ------------------------

(Place) ------------------------
(Date) ------------------------

RECORD OF GENERAL DATA ON TANKS

Numbered ---------- to ---------- inclusive
Built by ------------------------ Company
For ---------------------------- Company

Serial No. of tank	Data obtained as prescribed in § 78.277-2(c)						Larger value of the factor $\frac{D^2+d^2}{D^2-d^2}$	(S) Calculated fiber stress in pounds per square inch at 7/10 marked test pressure	Marked test pressure in pounds per square inch stamped in tank	Minimum tensile strength of material in pounds per square in. recorded
	Marked end of tank			Other end of tank						
	(t) Minimum thickness of wall in inches	(d) Maximum inside diameter in inches	(D) Calculated value of D in inches=d+2t	(t) Minimum thickness of wall in inches	(d) Maximum inside diameter in inches	(D) Calculated value of D in inches=d+2t				

(Signed) ------------------------

22. Cancel entire § 78.278 (15 F. R. 8503, 8504, Dec. 2, 1950) (49 CFR 78.278, 1950 Rev.)

23. Cancel entire § 78.279 (15 F. R. 8504, Dec. 2, 1950) (49 CFR 78.279, 1950 Rev.)

24. Amend entire § 78.280 (20 F. R. 8111, Oct. 28, 1955) (19 F. R. 3263, 3264, June 3, 1954) (18 F. R. 5278, Sept. 1, 1953) (18 F. R. 806, Feb. 7, 1953) (17 F. R. 9841, Nov. 1, 1952) (17 F. R. 7287, Aug. 9, 1952) (16 F. R. 11783, 11784, Nov. 21, 1951) (15 F. R. 8504 to 8509, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.280) to read as follows:

§ 78.280 *Specification ICC-103-W; fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.280-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and have at least one expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have two heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.280-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather-tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.280-3 *Bursting pressure.* (a) the calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.280-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	¼	5/16	½	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	½	5/16	5/16
Over 78 to 96 inches	½	⅜	5/16	½	5/16	⅜
Over 96 to 112 inches	½	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	½	½	5/16	⅝	5/16	½

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.280–5 (a), must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.280–5 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) For tanks without underframe the minimum thickness of bottom sheet must not be less than ⅝ inch.

(g) When tank is divided into compartments the interior head must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.280–5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets, if used, must be of the same quality as used for steam boilers and other pressure vessels, and be made of steel to an approved specification. When clad plates are used and attachments are riveted, the rivet heads inside the tank must be clad with the same material, or, rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.280–6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.280–7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by the Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion welding in accordance with the requirements of AAR Welding Code Appendix W.

§ 78.280–8 *Manway ring, safety valve flange, and bottom outlet nozzle flange or other attachments.* (a) These attachments may be riveted or fusion welded. Riveted joints must be made metal to metal without interposition of other material. Rivets, if used, must be driven hot and calked inside. For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. Use of rivets of less than ⅝ inch nominal diameter prohibited. Fusion-welding for securing these attachments in place must be of double-welded butt joint type or double full-fillet lap joint type.

(b) *Calking.* All attachments riveted to the tank must have the rivets calked, and the joints formed by the attachments, calked on the inside of tank.

§ 78.280–9 *Stress-relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress relieved as a unit.

§ 78.280–10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.280–11 *Anchor rivets.* (a) If used, they may have their heads on the inside of the tank shell covered and protected from the lading by a liquid-tight housing of approved design. The lower portion of the housing must be fusion-welded to, and stress-relieved with the tank shell as a unit. After the rivets have been driven and calked, the top portion of the housing must be secured to the top of the lower portion by an approved method of welding, which welding need not be stress-relieved. A hole must be provided through tank shell, under each housing, to permit making air pressure test. Each test hole must be tightly closed after completion of test with an approved plug.

§ 78.280–12 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside of dome, of at least 2 per cent of the total capacity of the tank and dome combined, except that when safety valve or safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety valve or safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in the manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and designed for pressure on concave side.

§ 78.280–13 *Closures for manways.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway covers must be made of cast, forged or fabricated steel, malleable iron or other malleable metals. Manway rings, if riveted to dome of tank, must be made of cast, forged or fabricated steel, malleable iron or other malleable metals. Manway rings, if welded to dome of tanks, must be made of cast, forged or fabricated steel and be of good weldable quality in conjunction with metal of dome.

(c) All covers not hinged must be attached to outside of dome head by at least ⅜ inch chain or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.280-14 *Gauging, bottom outlet valve operating rod, venting, loading and unloading, and air inlet devices extending through dome of tank.* (a) Not specification requirements. When installed these devices including their valves and fittings must be of approved design, made of materials not subject to rapid deterioration by the lading. These devices including their valves must be provided with a protective housing. Unloading pipe must be securely anchored within the tank. Provision must be made for closing pipe connections of valves.

§ 78.280-15 *Bottom outlets.* (a) The bottom outlet, when installed, must be made of metal not subject to rapid deterioration by the lading, be of approved construction, and be provided with a valve at its upper end and a liquid tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle construction must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be cast, fabricated or forged metal. If outlet nozzle is welded to tank, it must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank.

(d) To provide for the attachment of standard unloading connections, the bottom of the main portion of the outlet nozzle or some fixed attachment thereto, must have external Unified Form Threads, 4 threads to the inch.

(e) For outlet nozzles that extend 6 inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of outlet nozzle at a point immediately below lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam-jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve and seat must be readily accessible or removeable for repairs, including grinding.

(h) The valve operating mechanism must have means for compensating for variation in the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to car by at least ⅜ inch chain or its equivalent, except that outlet closure plugs may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.280-16 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design mounted on expansion dome. Total valve discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank, or compartment thereof, of 6,650 gallons capacity or less, and two safety valves for each tank, or compartment thereof, of over 6,650 gallons capacity.

(c) Each safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor tight at 28 pounds per square inch. (For tolerance see § 78.280-21 (a).)

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped must have 1 safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not for Flammable Liquids."

(e) Safety valve or safety vent flanges, if welded to dome, must be of cast, forged or fabricated metal, and be of good weldable quality in conjunction with metal of dome.

§ 78.280-17 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. When attachments are riveted the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least one and one-half times the diameter of the hole and not more than that distance plus ¼ inch. The joints formed by attachment of all riveted external projections must be calked on the inside. All rivet heads on the inside and outside of tank and dome must be calked. Split calking is prohibited. Interior heater systems when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.280-18 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, if welded to tank or dome, must be of cast, forged or fabricated metal, and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.280-19 *Closures for openings.* (a) All plugs must be solid, of good grade cast iron or equivalent, of standard pipe thread of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least ⅜ inch in size stamped with steel-stamp or cast in the outside surface to indicate the plug is solid.

§ 78.280-20 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of the tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.280-7 (a).

(d) Test of interior heater systems. Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

(e) Anchor rivet housing test. After anchor rivet housings, if applied, are in place these housings must be tested by applying an air pressure of 100 pounds per square inch through openings in tank shell and must be tight against leakage.

§ 78.280-21 *Test of safety valves.* (a) Each valve must be tested, before being put into service, by attaching to an air line and applying pressure. The valve must not leak below 28 pounds pressure. The valve must open at the pressure prescribed in § 78.280-16 (c), with a tolerance of plus or minus 3 pounds.

§ 78.280-22 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and

figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

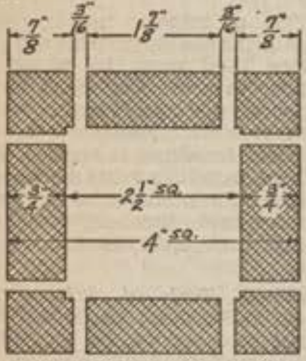
(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) Identification mark, illustrated herein, for approved manway closure must be stenciled on each side of dome, or jacket if lagged, in line with the ladders and in a color contrasting to color of dome.



Manhole Closure Identification Mark
(Reduced size)

(8) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(9) Tanks made of clad plates must be stenciled on the tank, or jacket if lagged, (naming material) ____________ clad tank. Lined tanks must be stenciled on the tank, or jacket if lagged, (naming material) ________________ lined tank. These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.280-23 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

25. Amend entire § 78.281 (19 F. R. 3264, June 3, 1954) (15 F. R. 8509, 8510, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.281) to read as follows:

§ 78.281 *Specification ICC-103A-W; fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.281-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, 1 expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.281-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.281-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.281-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	1/2	5/16	5/16
Over 78 to 96 inches	1/2	3/8	5/16	1/2	5/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	5/16	1/2

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.281-5 (a) must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.281-5 (a); minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) When tank is divided into compartments the interior head must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.281-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange-quality steel to an approved specification. The carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets, if used, must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification. When clad plates are used and attachments are riveted, the rivet heads inside the tank must be clad with the same material, or, rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.281-6 *Tank heads.* (a) Tanks heads must be of an approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches, except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.281-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.281-8 *Manway rings, safety vent flange, and bottom washout nozzle flange or other attachments.* (a) These attachments may be riveted or fusion-welded. Riveted joints must be made metal to metal without interposition of other materials. Rivets, if used, must be driven hot and calked inside. For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. Use of rivets of less than ⅝ inch nominal diameter prohibited. Fusion welding for securing these attachments in place must be of the double-welded butt-joint type or double-full-fillet-lap joint type.

(b) *Calking.* All attachments riveted to the tank must have the rivets calked, and the joints formed by the attachments, calked on the inside of tank.

§ 78.281-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.281-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.281-11 *Anchor rivets.* (a) If used, they may have their heads on the inside of the tank shell covered and protected from the lading by a liquid-tight housing of approved design. The lower portion of the housing must be fusion-welded to, and stress-relieved with, the tank shell as a unit. After the rivets have been driven and calked, the top portion of the housing must be secured to the top of the lower portion by an approved method of welding, which welding need not be stress-relieved. A hole must be provided through tank shell, under each housing to permit making air pressure test. Each test hole must be tightly closed after completion of test with an approved plug.

§ 78.281-12 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside of dome, of at least 1 per cent of the total capacity of the tank and dome combined, except that when safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in the manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.281-13 *Closures for manway.* (a) The manway cover must be of bolted type, bolted and hinged type, or other approved types, and designed to provide a secure closure of the manway.

(b) Manway covers must be made of cast, forged or fabricated steel, malleable iron or other malleable metals. Manway rings, if riveted to dome of tank, must be made of cast, forged or fabricated steel, malleable iron or other malleable metals. Manway rings, if welded to dome of tank, must be made of cast, forged or fabricated steel and be of good weldable quality in conjunction with the metal of the dome.

(c) Chains, if used to attach manway covers to outside of dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.281-14 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Not specification requirements. When installed these devices must be of an approved design, made of material not subject to rapid deterioration by the lading, and be tightly closed. Protective housing not required, except as prescribed in paragraph (b) of this section. Unloading pipe must be securely anchored within the tank.

(b) When the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices including valves must be of an approved design and be provided with a protective housing. Provision must be made for closing pipe connections of valves.

§ 78.281-15 *Bottom outlets.* (a) Bottom outlet is prohibited, but tank may be equipped with a bottom washout nozzle of metal not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements:

(b) The construction and closure of the bottom washout nozzle must be such that it is liquid tight and should the nozzle be broken, loss of contents will not occur.

(c) The extreme projection of the bottom washout nozzle must be at least 12 inches above the top of rail.

(d) Bottom washout nozzle may be of cast, fabricated, or forged metal. If welded to tank, it must be of good weldable quality in conjunction with metal of tank.

(e) The closure of the washout nozzle must be equipped with a ¾ inch solid screw plug. Plug must be secured to car structure or washout chamber by at least a ¼ inch chain.

(f) For bottom washout nozzles that project 6 inches or more from shell of tank, a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(g) The flange on the bottom washout nozzle must be of a thickness which will prevent distortion of the inside closure seat or closure casting by any change in contour of the shell, resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the washout nozzle will occur at or below the "V" groove.

(h) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

§ 78.281-16 *Safety vents.* (a) Safety valves are prohibited, but a safety vent must be applied.

(b) Each tank or compartment thereof must be equipped with 1 safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement.

(c) Safety vent flanges, if welded to dome, must be of cast, forged, or fabricated metal and be of good weldable quality in conjunction with metal of dome.

§ 78.281-17 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. When attachments are riveted, the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch. The joints formed by attachment of all riveted external projections must be calked on the inside. All rivet heads on the inside and outside of tank and dome must be calked. Split calking is prohibited. Interior heater systems when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.281-18 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, if welded to tank or dome, must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.281-19 *Closures for openings.* (a) All plugs must be solid, of good grade cast iron or equivalent, with standard pipe threads of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads, must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.281-20 *Tests of tanks.* (a) Each tank must be tested before being put into service, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be as prescribed in § 78.281-7 (a).

(d) Test of interior heater systems: Before interior heater systems are placed in service they must be tested with hydrostatic pressure and be tight at 200 pounds per square inch.

(e) Anchor rivet housing test: After anchor rivet housings, if applied, are in place, these housings must be tested by applying a pressure of 60 pounds per square inch through openings in tank shell and must be tight against leakage.

§ 78.281-21 *Marking.* (a) Each tank must be marked thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103A-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(7) Tanks made of clad plates must be stenciled on the tank, or jacket if lagged, (naming material) ---------- clad tank. Lined tanks must be stenciled on the tank, or jacket if lagged, (naming material) ------ lined tank. These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.281-22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

26. Amend entire § 78.282 (19 F. R. 3264, June 3, 1954) (18 F. R. 5278, Sept. 1, 1953) (15 F. R. 8510 to 8512, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.282) to read as follows:

§ 78.282 *Specification ICC-103B-W; rubber lined fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.282-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least one expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have two heads designed convex outward, one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.282-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.282-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.282-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	1/2	5/16	5/16
Over 78 to 96 inches	1/2	3/8	5/16	1/2	5/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	5/16	1/2

(c) Tank must be lined with rubber at least 5/32 inch thick, except over all rivets and seams formed by riveted attachments where the lining must be double thickness. The lining must overlap at least 1½ inches at all edges, which must be straight and be beveled to an angle of approximately 45 degrees. A rubber reinforcement pad at least 4½ feet square and at least ½ inch thick must be applied by vulcanizing to the lining on bottom of tank directly under the dome. The edges of pad must be beveled to an angle of approximately 45 degrees. An opening in this pad for sump is permitted. No rubber shall be under tension when applied except that due to conformation over rivet heads. Interior of tank must be free from scale, oxidation, moisture, and all foreign matter during the lining operations.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) When tank is divided into compartments the interior head must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head, a new exterior head of approved contour not less than ⅜ inch in thickness must be applied. When the capacity is reduced by the insertion of a new interior head, this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain-hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.282-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification. The carbon content of which shall not exceed 0.31 percent.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets, if used, must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification.

(d) Each tank or each compartment thereof, must be lined with acid resisting rubber, vulcanized or bonded directly or otherwise attached to the metal tank, to provide a non-porous laminated lining.

(e) All external projections must be made of materials specified herein.

§ 78.282-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed to pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches, except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.282-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. welding code Appendix "W".

§ 78.282-8 *Manway ring, safety vent flange, and sump flange or other attachments.* (a) These attachments may be riveted or fusion-welded. Riveted joints must be made metal to metal without interposition of other material. Rivets, if used, must be driven hot and calked inside. For computing rivet areas, the effective diameter of a driven rivet is the diameter of its ream hole, which must in no case exceed nominal diameter of rivet by more than 1/16 inch. Use of rivets of less than ⅝ inch nominal diameter prohibited. Fusion-welding for securing attachments in place must be of the double-welded butt joint type or double full-fillet lap joint type. All rivet heads on inside of tank must be button-head or similar shape, of uniform size and the under surface of heads must be driven tight against shell. All plates, castings, and rivet heads on inside of tank must be calked. All projecting edges of plates, castings, and rivet heads on inside of tank must be rounded and free from fins or other irregular projections. Castings must be free from porosity.

(b) *Calking.* All attachments riveted to the tank must have the rivets calked, and the joints formed by the attachments calked on the inside of tank.

§ 78.282-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.282-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

§ 78.282-11 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 1 percent of total capacity of the tank and dome combined, except that when safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening for manway before lining, must be at least 18 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.282-12 *Closures for manway.* (a) The manway cover must be of approved type and designed to provide a secure closure of the manway.

(b) Manway cover must be made of a suitable metal. The top, bottom, and edge of manway cover must be rubber covered as prescribed in §§ 78.282-4 (c) and 78.282-5 (d). Through bolt holes must be lined with rubber at least ⅛ inch in thickness. Cover made of metal not affected by the lading need not be rubber covered. All rubber surfaces on outside of tank or fittings must be protected with an age resisting coating. Manway flange, if riveted to dome of tank, must be of cast, forged or fabricated steel, malleable iron or other malleable metals. Manway flange, if welded to dome of tank, must be made of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of dome.

(c) Chains, if used to attach manway cover to outside of the dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between manway cover and manway flange, and between manway cover and any appurtenances mounted thereon, must be made tight against leakage.

§ 78.282-13 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) When installed, these devices must be of an approved design and must be tightly closed. Protective housing not required, except when the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices, including the valves, must be of an approved design and provided with a protective housing. Unloading pipes must be securely anchored within the tank.

(b) When gauging, venting, loading and unloading, and air inlet devices and their closures are made of material affected by the lading they must have all surfaces rubber covered as prescribed in § 78.282-4 (c) and § 78.282-5 (d). Interior pipes of these devices must be supported at their lower end.

§ 78.282-14 *Bottom outlets.* (a) Bottom outlet is prohibited. Bottom sump is permissible. If used and welded to tank it must be of cast, fabricated or forged metal of good weldable quality in conjunction with metal of tank.

§ 78.282-15 *Safety vents.* (a) Safety valves are prohibited, but a safety vent must be applied.

(b) Each tank, or each compartment thereof, must be equipped with one safety vent, lined with rubber of at least ⅛ inch thickness, having an inside diameter of at least 1¾ inches after lining, closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement.

(c) Safety vent flanges, if welded to dome, must be of cast, forged, or fabricated metal and be of good weldable quality in conjunction with metal of dome.

§ 78.282-16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by an approved means. When attachments are riveted the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least one and one-half times the diameter of the hole and not more than that distance plus ¼ inch. The joints formed by attachments of all riveted external projections must be calked on the inside. Split calking prohibited. Interior heater systems, when installed, must be made of material not affected by the lading. They must be constructed so that the breaking off of their external connections will not cause leakage of contents of tanks. All surfaces of attachments exposed to the lading must be covered with rubber as prescribed in §§ 78.282-4 (c) and 78.282-5 (d). Attachments made of metal not affected by the lading need not be rubber covered.

§ 78.282-17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems closure flanges, if welded to tank or dome, must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.282-18 *Closures for openings.* (a) Closures for openings must have all surfaces exposed to the lading rubber covered or be made of material not affected by the lading.

§ 78.282-19 *Tests of tanks.* (a) Each tank must be tested, before rubber lining is applied by completely filling tank and dome with water, or other liquid of similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety vents, must be in place while test is made. After tank is rubber lined, no further tests are required.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.282-7 (a).

(d) Tests of interior heater systems: Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.282-20 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103B-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of orignal test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped mark specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) "Rubber-lined tank—pressure test not required," stenciled on tank, or jacket if lagged, instead of record of test of tank.

(5) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.282-21 *Reports.* (a) Before a tank is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

(b) Before a tank car tank not originally built under this specification is lined with rubber, a report certifying that the tank and its equipment have been brought into compliance with the tank requirements of Specification ICC-103B-W must be furnished by car owner to the party who is to apply the rubber lining. A copy of this report in approved form certifying that tank has been lined in compliance with all requirements of this specification, must be furnished by party lining the tank to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads.

27. Amend entire § 78.283 (19 F. R. 3264, June 3, 1954) (18 F. R. 5278, Sept.

1, 1953) (16 F. R. 11784, Nov. 21, 1951) (15 F. R. 8512, 8513, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.283) to read as follows:

§ 78.283 *Specification ICC-103C-W; fusion-welded alloy steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.283-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, 1 expansion dome with manway, and such other external protections as are prescribed herein.

§ 78.283-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.283-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.283-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	1/2	5/16	5/16
Over 78 to 96 inches	1/2	3/8	5/16	1/2	5/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	5/16	1/2

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built of 1 piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) When tank is divided into compartments the interior head must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.283-5 *Material.* (a) All plates, forgings, tubes and castings for tank and expansion dome, and all projections and their closures, must be to an approved specification and be made of a metal capable of resisting the action of nitric acid as follows:

(1) The maximum corrosion rate in inches penetration per month in the standard 65 percent boiling nitric acid test shall be 0.006 for the straight chromium-bearing stainless steel and 0.0015 for any of the chromium nickel alloys. This figure to be an average of five 48-hour periods.

§ 78.283-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.283-7 *Welding* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with requirements of AAR Welding Code Appendix "W".

§ 78.283-8 *Manway flange, safety valves flange, and sump flange or other attachments.* (a) These attachments must be fusion-welded. Fusion-welding for securing these attachments in place must be of the double-welded butt joint type or double full-fillet lap joint type.

§ 78.283-9 *Heat treatment.* (a) All welding of the tank shell and of attachments welded directly thereto must be heat treated as a unit to remove stresses and at the proper temperature to obtain the corrosion resistance specified in § 78.283-5 (a) (1)

§ 78.283-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.283-11 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 1 percent of the total capacity of the tank and dome combined.

(b) The opening for manway must be at least 18 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, dome pocket drain holes must be provided in the tank shell with nipples extending inside the tank at least 1 inch.

(c) The dome head must be of material complying with requirements of § 78.283-5 (a), and designed convex outward to a radius of not more than 10 feet.

§ 78.283-12 *Closures for manway.* (a) The manway cover must be of approved type and designed to provide a secure closure of the manway.

(b) Manway flange and cover must be made of the metal prescribed in § 78.283-5 (a).

(c) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.283–13 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) When installed these devices, including their valves, must be of approved design and must be tightly closed. Protective housing of approved design covering all these devices must be installed. Unloading pipe must be securely anchored within the tank.

(b) Gauging, venting, loading and unloading, and air inlet devices, when installed must be provided with efficient valves, made of material complying with the requirements of § 78.283–5 (a). Provision must be made for closing pipe connections of valves.

§ 78.283–14 *Bottom outlets.* (a) Bottom outlet prohibited. Bottom sump of cast, fabricated, or forged metal is permissible. If used it must be welded to tank and must be made of material complying with requirements of § 78.283–5 (a).

§ 78.283–15 *Safety valves.* (a) The tank must be equipped with a safety valve at least 2 inches inside diameter mounted on top of expansion dome. Total valve discharge capacity must be sufficient to prevent building up pressure in tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank or compartment thereof.

(c) The safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor-tight at 28 pounds per square inch. (For tolerance see § 78.283–20 (a).)

(d) Safety valve flanges must be of cast, forged or fabricated material complying with the requirements of § 78.283–5 (a).

§ 78.283–16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by welding. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of the contents of tanks.

§ 78.283–17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, must be of cast, forged or fabricated material complying with the requirements of § 78.283–5 (a).

§ 78.283–18 *Closures for openings.* (a) All plugs must be solid, made of materials prescribed in § 78.283–5 (a), with standard pipe thread, and must be of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.283–19 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All closures, except safety valves, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.283–7 (a).

(d) Tests of interior heater systems: Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.283–20 *Tests of safety valves.* (a) Valve must be tested before being put into service, by attaching to an air line and applying pressure. The valve must open at the pressure prescribed in § 78.283–15 (c) with a tolerance of plus or minus three (3) pounds.

§ 78.283–21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC–103C–W and specification number of material used in tank shell and expansion dome in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC–103C–W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.283–22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

28. Amend entire § 78.284 (17 F. R. 9841, Nov. 1, 1952) (15 F. R. 8513, 8514, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.284) to read as follows:

§ 78.284 *Specification ICC–104–W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.284–1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments each compartment must have 2 heads designed convex outward, 1 expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.284–2 *Lagging.* (a) The tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather-tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.284-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.284-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section.

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7⁄16	1⁄4	5⁄16	1⁄2	5⁄16	5⁄16
Over 60 to 78 inches	7⁄16	5⁄16	5⁄16	1⁄2	5⁄16	5⁄16
Over 78 to 96 inches	1⁄2	3⁄8	5⁄16	1⁄2	5⁄16	3⁄8
Over 96 to 112 inches	1⁄2	7⁄16	5⁄16	9⁄16	5⁄16	7⁄16
Over 112 to 122 inches	1⁄2	1⁄2	5⁄16	5⁄8	5⁄16	1⁄2

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.284-5 (a), must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.284-5 (a), minimum thickness of base plate must be as prescribed in the above table.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(e) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(f) For tanks without underframe the minimum thickness of bottom sheet must not be less than 5⁄8 inch.

(g) When tank is divided into compartments the interior head must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than 5⁄8 inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than 3⁄4 inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.284-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification. The carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) Rivets, if used, must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification. When clad plates are used and attachments are riveted, the rivet heads inside the tank must be clad with the same material, or, rivets may be of the same material as the cladding, provided rivets have physical properties at least equivalent to rivets prescribed herein.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.284-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.284-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.284-8 *Manway ring, safety valve flange, and bottom outlet nozzle flange or other attachments.* (a) The attachments may be riveted or fusion-welded. Riveted joints must be made metal to metal without interposition of other material. Rivets, if used, must be driven hot and calked inside. For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1⁄16 inch. Use of rivets of less than 5⁄8 inch nominal diameter prohibited. Fusion-welding for securing these attachments in place must be of double-welded butt joint type or double full-fillet lap joint type.

(b) *Calking.* All attachments riveted to tank must have the rivets calked, and the joints formed by the attachments, calked on the inside of tank.

§ 78.284-9 *Stress-relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.284-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

§ 78.284-11 *Anchor rivets.* (a) If used, they may have their heads on the inside of the tank shell covered and protected from the lading by a liquid-tight housing of approved design. The lower portion of the housing must be fusion-welded to, and stress-relieved with the tank shell as a unit. After the rivets have been driven and calked, the top portion of the housing must be secured to the top of the lower portion by an approved method of welding, which welding need not be stress-relieved. A hole must be provided through tank shell, under each housing to permit making air pressure tests. Each test hole must be tightly closed after completion of test with an approved plug.

§ 78.284-12 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside the dome, of at least 2 percent of the total capacity of the tank and dome combined, except that when safety valve or safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety valve or safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.284–13 *Closures for manways.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway covers must be made of cast, forged, or fabricated steel, malleable iron or other malleable metals. Manway rings, if riveted to dome of tank, must be of cast, forged, or fabricated steel, malleable iron or other malleable metals. Manway rings, if welded to dome of tank, must be made of cast, forged, or fabricated steel and be of good weldable quality in conjunction with metal of dome.

(c) All covers not hinged must be attached to outside of dome head by at least ⅜ inch chain or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.284–14 *Gauging, bottom outlet valve operating rod, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Venting, loading, and unloading devices of approved design must be installed.

(b) Gauging, bottom outlet valve operating rod, and air inlet devices are not specification requirements.

(c) When installed, these devices, including their valves and fittings, must be of approved design, made of materials not subject to rapid deterioration by the lading. These devices, including their valves, must be provided with a protective housing. Unloading pipe must be securely anchored within the tank. Provisions must be made for closing pipe connections of valves.

§ 78.284–15 *Bottom outlets.* (a) The bottom outlet, when installed, must be made of metal not subject to rapid deterioration by the lading, be of approved construction, and be provided with a valve at its upper end and a liquid tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle construction must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be cast, fabricated, or forged metal. If outlet nozzle is welded to tank, it must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank.

(d) To provide for the attachment of standard unloading connections, the bottom of the main portion of the outlet nozzle or some fixed attachment thereto, must have external Unified Form Theads, 4 threads to the inch.

(e) For outlet nozzles that project 6 inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of outlet valve nozzle at a point immediately below lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve and seat must be readily accessible or removable for repairs, including grinding.

(h) The valve operating mechanism must have means for compensating for variation in the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to car by at least ⅜ inch chains or its equivalent, except that outlet closure plugs may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.284–16 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design mounted on expansion dome. Total valve discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank, or compartment thereof, of 6,650 gallons capacity or less, and two safety valves for each tank, or compartment thereof, of over 6,650 gallons capacity.

(c) Each safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor-tight at 28 pounds per square inch. (For tolerance see § 78.284–21 (a).)

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped, must have one safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closures must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not for Flammable Liquids."

(e) Safety valve or safety vent flanges, if welded to dome, must be of cast, forged or fabricated metal, and be of good weldable quality in conjunction with metal of dome.

§ 78.284–17 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. When attachments are riveted the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole plus ¼ inch. The joints formed by attachment of all riveted external projections must be calked on the inside. All rivet heads on the inside and outside of tank and dome must be calked. Split calking is prohibited. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.284–18 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, if welded to tank or dome, must be of cast, forged, or fabricated metal, and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.284–19 *Closures for openings.* (a) All plugs must be solid, of good grade cast iron or equivalent, with standard pipe thread of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.284–20 *Tests of tanks.* (a) Each tank must be tested before being put into service and before lagging is applied by completely filling tank and dome with water, or other liquid of similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.284–7 (a).

(c) Tests of interior heater systems: Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

(d) Anchor rivet housing test: After anchor rivet housing, if applied, are in place these housings must be tested by applying an air pressure of 100 pounds per square inch through openings in tank shell and must be tight against leakage.

§ 78.284–21 *Tests of safety valves.* (a) Each valve must be tested, before being put into service, by attaching to an air line and applying pressure. The valve must not leak below 28 pounds per square inch pressure. The valve must open at the pressure prescribed in § 78.284–16 (c), with a plus or minus 3 pounds.

§ 78.284–22 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-104-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of the tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

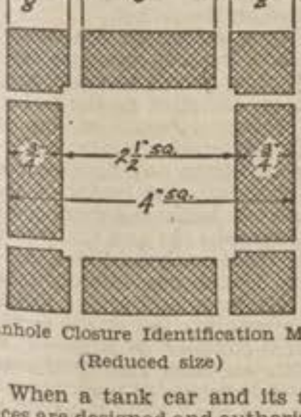
(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Date on which the interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(7) Identification mark, illustrated herein, for approved manway closure must be stenciled on each side of dome jacket in line with the ladders and in a color contrasting to color of dome jacket.



Manhole Closure Identification Mark

(Reduced size)

(8) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wurding as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(9) Tanks equipped with safety valves set to open at a pressure of 35 pounds per square inch, as prescribed in § 78.284-16 (e), must be stenciled "For Vapor Pressures Not Exceeding 40 Pounds Per Square Inch Absolute at 100 Degrees Fahrenheit" in letters and figures at least 1 inch high immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(10) Tanks made of clad plates must be stenciled on the jacket "(naming material) ____________ clad tank". Lined tanks must be stenciled on the jacket "(naming material) ____________ lined tank". These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.284-23 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

29. Amend entire § 78.285 (18 F. R. 3145, June 2, 1953) (17 F. R. 9841, Nov. 1, 1952) (17 F. R. 7287, Aug. 9, 1952) (16 F. R. 11784, Nov. 21, 1951) (15 F. R. 8514, 8515, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.285) to read as follows:

§ 78.285 *Specification ICC-105A100-W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.285-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.285-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness to ½ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.285-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint must be at least 495 pounds per square inch.

§ 78.285-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section.

$$t=\frac{Pd}{2SE}$$

where

t=thickness in inches of thinnest plate;
P=calculated bursting pressure pounds per square inch;
d=inside diameter in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of longitudinal welded joint=90 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Tank heads
	Inch	*Inch*	*Inch*
87 inches or under	½	½	½
Over 87 to 96 inches	9/16	9/16	9/16

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.285-6 (a) must be as prescribed in the above table. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.285-6 (a), minimum thickness of base plate must be as prescribed in the above table.

§ 78.285-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.285-6 *Material.* (a) All plates for tank and manway nozzle must be made of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification. Use of cast iron prohibited.

(c) All external projections must be made of materials specified herein.

(d) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.285-7 *Tank heads.* (a) The tank head shape shall be an ellipsoidal of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ the major axis.

§ 78.285-8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of AAR Welding Code Appendix "W".

§ 78.285-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.285-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.285-11 *Manway nozzle, cover, and protective housing.* (a) Manway nozzle must be of approved design of cast, forged or rolled steel at least 18 inches inside diameter and attached to tank by fusion welding. Fusion welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be of forged or rolled steel at least 2¼ inches thick, machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather-proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.285-12 *Venting, loading and unloading, gauging and sampling devices and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of valves must be closed with approved screw plugs chained or otherwise fastened to prevent misplacement.

(b) Interior pipes of the loading and unloading valves, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve, and thermometer well are not specification requirements. When used they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks used for the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

§ 78.285-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of metal not subject to rapid deterioration by the lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 75 pounds per square inch.

(b) The safety valves must be set to open at a pressure not exceeding 75 pounds per square inch. (For tolerance see § 78.285-17 (a)).

§ 78.285-14 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than anchorage and those mounted on manway cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved methods.

§ 78.285-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and made of metal not subject to rapid deterioration by the lading.

§ 78.285-16 *Tests of tanks.* (a) Each tank must be tested by completely filling tank and manway nozzle with water or other liquid of similar viscosity having a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 100 pounds per square inch. The tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.285-8 (a).

(c) Tests of exterior heater systems not a specification requirement.

§ 78.285-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 75 pounds per square inch and be vapor tight at 60 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.285-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification as follows:

(1) ICC-105A100-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of the ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that com-

modity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket (naming material) ________________ clad tank. Lined tanks must be stenciled on the jacket (naming material) ______________ lined tank. These marks must be in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.285-19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

30. Amend entire § 78.286 (18 F. R. 3148, June 2, 1953) (17 F. R. 9841, Nov. 1, 1952) (16 F. R. 11784, Nov. 21, 1951) (15 F. R. 8515, 8516, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.286) to read as follows:

§ 78.286 *Specification ICC-105A300-W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.286-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling, and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.286-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than $\frac{1}{8}$ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to $\frac{1}{2}$ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.286-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint must be at least 750 pounds per square inch.

§ 78.286-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank and tank heads must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure in pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be $\frac{11}{16}$ inch.

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.286-6 (a), must be as prescribed in paragraph (b) of this section. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.286-6 (a), minimum thickness of base plate must be as prescribed in paragraph (b) of this section.

§ 78.286-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.286-6 *Material.* (a) All plates for tank and manway nozzle must be made of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification. The use of cast iron is prohibited.

(c) All external projections must be made of materials specified herein.

(d) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.286-7 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be $\frac{1}{2}$ of the major axis.

§ 78.286-8 *Welding.* (a) All joints must be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of AAR Welding Code Appendix "W".

§ 78.286-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto, must be stress-relieved as a unit.

§ 78.286-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.286-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged or rolled steel at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be of forged or rolled steel at least $2\frac{1}{4}$ inches thick (or nickel at least 2 inches thick when required by the lading), machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.286-12 *Venting, loading and unloading valves, gauging and sampling device and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 300 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved screw plugs or otherwise fastened to prevent misplacement.

(b) The interior pipes of the loading and unloading valves, except as prescribed in paragraphs (d) and (e) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 300 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of the thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks for use in the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

(e) Tanks for use in the transportation of chlorine must have the interior pipes of the liquid lines equipped with excess flow valves of an approved design.

§ 78.286-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of an approved design, made of metal not subject to rapid deterioration by lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in exces of 225 pounds per square inch.

(b) The safety valve must be set to open at a pressure not exceeding 225 pounds per square inch. (For tolerance see § 78.286-17 (a).)

§ 78.286-14 *Fixtures, reinforcements and attachments not otherwise specified.* (a) Attachments, other than the anchorage, interior pipe bracing, and those mounted on manway cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved methods.

§ 78.286-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.286-16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before the tank lagging is applied, by completely filling tank and manway nozzle with water, or other liquid or similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 300 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.286-8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.286-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 225 pounds per square inch and be vapor tight at 180 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.286-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A300-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only" or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket "-------------------------- (naming material) clad tank". Lined tanks must be stenciled on the jacket "--------------- (naming material) lined tanks". These marks must be stenciled in letters at least 2 inches high, immediately above stenciled mark specified in subparagraph (7) of this paragraph.

§ 78.286-19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

31. Amend entire § 78.287 (18 F. R. 3145, June 2, 1953) (16 F. R. 11784, Nov. 21, 1951) (15 F. R. 8516, 8517, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.287) to read as follows:

§ 78.287 *Specification ICC-105A400-W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.287-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling, and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.287-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.287-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint must be at least 1,000 pounds per square inch.

§ 78.287-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank and tank heads must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t=thickness in inches of thinnest plate;
P=calculated bursting pressure in pounds per square inch;
d=inside diameter in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of longitudinal welded joint=90 percent.

(b) The minimum thickness of plates must be $^{11}/_{16}$ inch.

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.287-6 (a), must be as prescribed in paragraph (b) of this section. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.287-6 (a), minimum thickness of base plate must be as prescribed in paragraph (b) of this section.

§ 78.287-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.287-6 *Material.* (a) All plates for tank and manway nozzle must be made of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification. The use of cast iron is prohibited.

(c) All external projections must be made of materials specified herein.

(d) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.287-7 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.287-8 *Welding.* (a) All joints must be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion welding in accordance with the requirements of AAR Welding Code Appendix "W".

§ 78.287-9 *Stress-relieving.* (a) All welding of the tank shell and of attachments welded directly thereto, must be stress-relieved as a unit.

§ 78.287-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to tank is prohibited.

§ 78.287-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged or rolled steel at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion-welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be of forged or rolled steel at least 2¼ inches thick (or nickel at least 2 inches thick when required by the lading), machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.287-12 *Venting, loading and unloading valves, gauging and sampling device and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 400 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved screw plugs or otherwise fastened to prevent misplacement.

(b) The interior pipes of the loading and unloading valves, except as prescribed in paragraphs (d) and (e) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 400 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks for use in the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

(e) Tanks for use in the transportation of chlorine must have the interior pipes of the liquid lines equipped with excess flow valves of an approved design.

§ 78.287-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of an approved design, made of metal not subject to rapid deterioration by lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 300 pounds per square inch.

(b) The safety valves must be set to open at a pressure not exceeding 300 pounds per square inch. (For tolerance see § 78.287-17 (a).)

§ 78.287-14 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than the anchorage, interior pipe bracing, and those mounted on manway cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved methods.

§ 78.287-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.287-16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before the tank lagging is applied, by completely filling tank and manway nozzle with water, or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 400 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.287-8 (a).

(c) Tests of exterior heater systems not a specification requirement.

§ 78.287-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 300 pounds per square inch and be vapor tight at 240 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.287-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A400-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph, by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only" or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket "____________ (naming material) clad tank". Lined tanks must be stenciled on the jacket "_______ (naming metarial) lined tanks." These marked must be stenciled in letters at least 2 inches high, immediately above stenciled mark specified in subparagraph (7) of this paragraph.

§ 78.287-19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

32. Amend entire § 78.288 (19 F. R. 3264, June 3, 1954) (18 F. R. 3145, June 2, 1953) (17 F. R. 9841, 9842, Nov. 1, 1952) (16 F. R. 11785, Nov. 21, 1951) (15 F. R. 8517 to 8519, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.288) to read as follows:

§ 78.288 *Specification ICC-105A500-W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.288-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.288-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to one-half that required for shell.

(b) Tanks for use in the transportation of liquefied carbon dioxide must have tank shell and manway nozzle lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.03 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour; except that the insulation thickness directly over the center sill may be reduced to give a thermal conductance not exceeding 0.04 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour; this reduction is to permit an anchorage which must not exceed 7 inches from top of center sill to bottom of tank.

(c) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.288-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint must be at least 1250 pounds per square inch.

§ 78.288-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure, pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be $^{11}/_{16}$ inch.

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.288-6 (a), must be as prescribed in paragraph (b) of this section. Where the cladding material does not have the physical properties at least equal to that of the base plate prescribed in § 78.288-6 (a), minimum thickness of base plate must be as prescribed in paragraph (b) of this section.

§ 78.288-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.288-6 *Material.* (a) All plates for tank and manway nozzle must be of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All plates for tank, manway nozzle and anchorage for tanks used in the transportation of liquefied carbon dioxide must be made of steel to an approved specification suitable for service at low temperatures.

(c) All castings used for fittings or attachments to tank must be made of material to an approved specification. The use of cast iron is prohibited.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.288-7 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.288-8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix "W".

§ 78.288-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.288-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to tank is prohibited.

§ 78.288-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged or rolled steel at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion-welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be of forged or rolled steel at least 2¼ inches thick machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather-proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.288-12 *Venting, loading and unloading valves, gauging and sampling device and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 500 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of valves must be closed with approved screw plugs chained or otherwise fastened to prevent misplacement.

(b) The interior pipes of the loading and unloading valves, except as prescribed in paragraphs (d) and (e) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 500 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks for use in the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

(e) Tanks used for the transportation of chlorine must have the interior pipes of the liquid lines equipped with excess flow valves of an approved design.

§ 78.288-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design made of metal not subject to rapid deterioration by the lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 375 pounds per square inch.

(b) The safety valves must be set to open at a pressure of not exceeding 375 pounds per square inch. (For tolerance see § 78.288-17 (a).)

(c) Tanks for use in the transportation of liquefied carbon dioxide must be equipped with one safety valve of approved design set to open at a pressure not exceeding 375 pounds per square inch and one frangible disc device of approved design set to function at a pressure less than the test pressure of the tank. The discharge capacity of each of these safety devices must be sufficient to prevent building up of pressure in tank in excess of 375 pounds per square inch. Tanks must also be equipped with two pressure-regulating valves of approved design, one set to open at 300 pounds per square inch pressure and one set to open at 333 pounds per square inch pressure. Each pressure-regulating valve and safety device must have its final discharge piped to the outside of the protective housing.

§ 78.288-14 *Fixtures, reinforcements and attachments not otherwise specified.* (a) Attachments, other than the anchorage and those mounted on manway nozzle and cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved methods.

§ 78.288-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.288-16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before the tank lagging is applied, by completely filling the tank and manway nozzle with water, or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 500 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.288-8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.288-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 375 pounds per square inch and be vapor tight at 300 pounds per square inch, which limiting pressures must not be affected by any auxiliary closures or other combination.

§ 78.288-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A500-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of the company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the

party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valve was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket "----------- (naming material) clad tank." Lined tanks must be stenciled on the jacket "----------- (naming material) lined tank." These marks must be stenciled in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (7) of this paragraph.

§ 78.288-19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

33. Amend entire § 78.289 (19 F. R. 3264, 3265, June 3, 1954) (18 F. R. 3145, June 2, 1953) (17 F. R. 9842, Nov. 1, 1952) (16 F. R. 11785, Nov. 21, 1951) (15 F. R. 8519, 8520, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., 78.289) to read as follows:

§ 78.289 *Specification ICC-105A600-W; lagged fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.289-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.289-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for shell.

(b) Tanks for use in transportation of liquefied carbon dioxide must have tank shell and manway nozzle lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.03 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour; except that the insulation thickness directly over the center sill may be reduced to give a thermal conductance not exceeding 0.04 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour; this reduction is to permit an anchorage which must not exceed 7 inches from top of center sill to bottom of tank.

(c) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.289-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint must be at least 1,500 pounds per square inch.

§ 78.289-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be ¹¹⁄₁₆ inch.

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.289-6 (a), must be as prescribed in paragraph (b) of this section. Where the cladding material does not have the physical properties at least equal to that of the base plate prescribed in § 78.289-6 (a), minimum thickness of base plate must be as prescribed in paragraph (b) of this section.

§ 78.289-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.289-6 *Material.* (a) All plates for tank and manway nozzle must be of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All plates for tank, manway nozzle and anchorage for tanks used in the transportation of liquefied carbon dioxide must be made of steel to an approved specification suitable for service at low temperatures.

(c) All castings used for fittings or attachments to tank must be made of material to an approved specification. The use of cast iron is prohibited.

(d) All external projections must be made of materials specified herein.

(e) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.289-7 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.289-8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with requirements of AAR Welding Code Appendix "W".

§ 78.289-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.289-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.289-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged or rolled steel at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be of forged or rolled steel at least 2¼ inches thick machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weather-proof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.289-12 *Venting, loading and unloading valves, gauging and sampling device and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 600 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved screw plugs chained or otherwise fastened to prevent misplacement.

(b) The interior pipes of the loading and unloading valves, except as prescribed in paragraphs (d) and (e) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 600 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks for use in the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve eqiupped with excess flow valves of an approved design.

(e) Tanks used for the transportation of chlorine must have the interior pipes of the liquid lines equipped with excess flow valves of an approved design.

§ 78.289-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design made of metal not subject to rapid deterioration by the lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 450 pounds per square inch.

(b) The safety valves must be set to open at a pressure of not exceeding 450 pounds per square inch. (For tolerance see § 78.289-17 (a).)

(c) Tanks for use in the transportation of liquefied carbon dioxide must be equipped with one safety valve of approved design set to open at a pressure not exceeding 450 pounds per square inch and one frangible disc device of approved design set to function at a pressure less than the test pressure of the tank. The discharge capacity of each of these safety devices must be sufficient to prevent building up of pressure in tank in excess of 450 pounds per square inch. Tanks must also be equipped with two pressure-regulating valves of approved design, one set to open at 360 pounds per square inch pressure and one set to open at 400 pounds per square inch pressure. Each pressure-regulating valve and safety device must have its final discharge piped to the outside of the protective housing.

§ 78.289-14 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than the anchorage and those mounted on the manway nozzle and cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved method.

§ 78.289-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.289-16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before the tank lagging is applied, by completely filling the tank and manway nozzle with water, or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 600 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.289-8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.289-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 450 pounds per square inch and be vapor tight at 360 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.289-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A600-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of the company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (2) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized

for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the jacket "-------- (naming material) clad tank." Lined tanks must be stenciled on the jacket "-------- (naming material) lined tank." These marks must be stenciled in letters at least 2 inches high, immediately above the stenciled mark specified in subparagraph (7) of this paragraph.

§ 78.289–19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

34. Cancel entire § 78.290 (15 F. R. 8520 to 8523, Dec. 2, 1950) (49 CFR 78.290, 1950 Rev.)

35. Amend entire § 78.291 (19 F. R. 3265, June 3, 1954) (18 F. R. 5278, Sept. 1, 1953) (18 F. R. 806, Feb. 7, 1953) (17 F. R. 9842, Nov. 1, 1952) (16 F. R. 5330 to 5334, June 6, 1951) (16 F. R. 5768, June 16, 1951) (49 CFR 1950 Rev., 1954 Supp., 78.291) to read as follows:

§ 78.291 *Specification ICC–103AL–W; fusion-welded aluminum tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars, as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.291–1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.291–2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expension dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weathertight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.291–3 *Bursting pressure.* (a) The calculated bursting pressure based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.291–4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch as follows:

ASTM B–178 Alloy 996A = 9,500 p. s. i.
ASTM B–178 Alloy 990A = 11,000 p. s. i.
ASTM B–178 Alloy M1A = 14,000 p. s. i.
ASTM B–178 Alloy GR20A = 25,000 p. s. i.
ASTM B–178 Alloy GS11A = 24,000 p. s. i.
ASTM B–178 Alloy GR40A = 30,000 p. s. i.

E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be as follows:

	Inch
Bottom sheet	⅝
Shell sheet	½
Expansion dome sheet	½
Tank head (dished)	⅝
Tank head (ellipsoidal)	½
Expansion dome head (dished or ellipsoidal)	½

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) The thickness of a dished tank head must be determined by the following formula, but shall in no case be less than that specified in paragaph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure, pounds per square inch;
L = main inside radius to which head is dished measured on concave side of head in inches;
S = minimum ultimate tensile strength in pounds per square inch (see paragraph (a) of this section);
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(f) The thickness of an ellipsoidal head shall be determined by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure, pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch (see paragraph (a) of this section);
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

§ 78.291–5 *Material.* (a) All plates for tank and expansion dome must be of an aluminum alloy to an approved specification and be suitable for fusion welding and not subject to rapid deterioration by the lading.

(b) Aluminum alloy castings for fittings or attachment to tank must be made of material to an approved specification.

(c) All rivets must be made of aluminum alloy to an approved specification. They must be handled and driven in a manner that will insure the requisite strength.

(d) All external projections which may be in contact with the lading must be made of material specified herein.

§ 78.291–6 *Tank heads.* (a) Tank heads must be of approved contour, and may be dished or ellipsoidal for pressure on concave side.

(b) Dished heads must have main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 5 inches.

(c) Ellipsoidal tank head shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ the major axis.

§ 78.291–7 *Welding.* (a) All joints must be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion welding to be performed by fabricators certified by the Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion welding in accordance with the requirements of AAR Welding Code, Appendix "W".

§ 78.291–8 *Manway ring, safety valve flange, and bottom outlet nozzle flange or other attachments.* (a) These attachments may be riveted or fusion welded. Riveted joints must be made metal to metal without interposition of other material. Rivets must be calked inside. For computing rivet areas the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than $\frac{1}{16}$ inch. Use of rivets of less than ⅝" nominal diameter prohibited. Fusion welding for securing these attachments in place must be of double welded butt joint type or double full-fillet lap joint type.

(b) *Calking.* All attachments riveted to the tank must have the rivets calked and the joints formed by attachments calked on the inside of tank.

§ 78.291–9 *Stress relieving.* (a) Not a specification requirement.

§ 78.291-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.291-11 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside of dome, of at least two per cent of the total capacity of the tank and dome combined, except that when safety valve or vent is applied to side of dome, the effective capacity of dome must be measured from top of safety valve or safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour. The dome head must be of an aluminum alloy.

(d) The dome shell thickness shall be calculated by the formula in § 78.291-4 (a).

(e) The dome head, if dished, must be dished to a radius not exceeding 96 inches. Thickness of the dished dome head shall be calculated by the formula in § 78.291-4 (e).

(f) Dome head may be an ellipsoid of revolution in which the major axis shall be equal to the diameter of the dome shell and the minor axis shall be one-half of the major axis. The thickness in this case shall be determined by using formula of the main head. (See § 78.291-4 (f).)

(g) Tank shell shall be reinforced by the addition of a plate equal to or greater than shell in thickness and the cross sectional area shall exceed metal removed for dome opening, or tank shell shall be reinforced by a seamless saddle plate equal to or greater than shell in thickness and butt welded to tank shell. The reinforcing saddle plate shall be provided with a flued opening having a vertical flange of the diameter of the dome for butt welding shell of dome to the flange. The reinforcing saddle plate shall extend about the dome a distance measured along shell of tank at least equal to the extension at top of tank. Other approved designs may be used.

§ 78.291-12 *Closure for manway.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway covers must be made of cast, forged or fabricated aluminum alloys or other approved materials. Manway rings must be made of cast, forged or fabricated aluminum alloys and must be of good weldable quality in conjunction with the metal of dome.

(c) All covers not hinged to tank must be attached to outside of the dome head, by at least ⅜ inch chain or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.291-13 *Gauging, bottom outlet valve operating, venting, loading, and unloading, and air inlet devices extending through domes of tanks.* (a) Not specification requirements. When installed, these devices, including their valves, must be of approved designs and must be made of materials not subject to rapid deterioration by the lading. These devices including their valves must be provided with a protective housing. Unloading pipe must be securely anchored with the tank. Provision must be made for closing pipe connections of valves.

§ 78.291-14 *Bottom outlets.* (a) The bottom outlet, when installed must be made of material not subject to rapid deterioration by the lading, be of approved construction, and be provided with a valve at its upper end and a liquid-tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle constructions must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be cast, fabricated or forged metal. The nozzle must be of good weldable quality in conjunction with metal of tank.

(d) To provide for the attachment of standard unloading connections, the bottom of the main portion of the outlet valve nozzle, or some fixed attachment thereto, must be equipped with a flange or with external Unified Form Threads, 4 threads to the inch.

(e) For outlet nozzles that project six inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of outlet valve nozzle at a point immediately below the lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve and seat must be readily accessible or removable for repairs, including grinding.

(h) The valve operating mechanism must have means for compensating for variation in the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to car by at least ⅜ inch chain or its equivalent, except that outlet closure plugs may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.291-15 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design mounted on expansion dome. Total valve discharge capacity must be sufficient to prevent building up of pressure in the tank in excess of 45 pounds per square inch.

(b) One safety valve must be provided for each tank of 6,650 gallons capacity or less, and two safety valves for each tank of over 6,650 gallons capacity.

(c) Each safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor-tight at 28 pounds per square inch. (For tolerance see § 78.291-20 (a).)

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped must have one safety vent made of approved material at least 1¾ inches inside diameter closed with a frangible disc of suitable material, of a thickness that will rupture at a pressure not exceeding 45 pounds per square inch. Means for holding in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not For Flammable Liquids".

(e) Safety valve or safety vent flanges, if welded to dome, must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of dome.

§ 78.291-16 *Fixtures, reinforcements and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. When attachments are riveted the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch. The joints formed by attachment of all riveted external projections must be calked on the inside. All rivet heads on the inside and outside of tank and dome must be calked. Split calking is prohibited. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.291–17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater system and plug flanges, if welded to tank or dome, must be of cast, forged, or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.291–18 *Closures for openings.* (a) All plugs must be solid, of cast, rolled or forged metal of approved material with standard pipe thread, of a length which will screw at least six threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least $\frac{3}{8}$ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.291–19 *Test of tanks.* (a) Each tank must be tested, before being put into service, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves or safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.291–7 (a).

(d) Test of interior heater systems. Before interior heater systems are placed in service, they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.291–20 *Tests of safety valves.* (a) Each valve must be tested, before being put into service, by attaching to an air line and applying pressure. The valve must not leak below 28 pounds pressure. The valve must open at the pressure prescribed in § 78.291–15 (c), with a plus or minus 3 pounds.

§ 78.291–21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC–103AL–W and specification number of material used in tank shell and expansion dome in letters and figures at least $\frac{3}{8}$ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC–103AL–W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least $\frac{3}{8}$ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

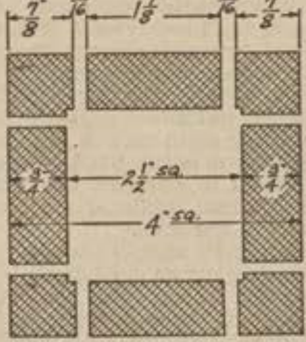
(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least $\frac{3}{8}$ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least two inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on tank, or jacket if lagged.

(7) Identification mark, illustrated herein, for approved manway closure must be stenciled on each side of dome, or jacket if lagged, in line with the ladders and in a color contrasting to color of dome.



Manhole Closure Identification Mark
(Reduced size)

(8) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.291–22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and the car owner.

36. Amend entire § 78.292 (19 F. R. 3265, June 3, 1954) (16 F. R. 5334, 5335, June 6, 1951) (16 F. R. 5768, June 16, 1951) (49 CFR 1950 Rev., 1954 Supp., 78.292) to read as follows:

§ 78.292 *Specification ICC–103A–AL–W; fusion-welded aluminum tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.292–1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least one expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.292–2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than $\frac{1}{8}$ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.292–3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.292–4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength pounds per square inch as follows:

ASTM B–178 Alloy 996A = 9,500 p. s. i.
ASTM B–178 Alloy 990A = 11,000 p. s. i.
ASTM B–178 Alloy M1A = 14,000 p. s. i.
ASTM B–178 Alloy GR20A = 25,000 p. s. i.
ASTM B–178 Alloy GS11A = 24,000 p. s. i.
ASTM B–178 Alloy GR40A = 30,000 p. s. i.

E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be as follows:

	Inch
Bottom sheet	⅝
Shell sheet	½
Expansion dome sheet	½
Tank head (dished)	⅝
Tank head (ellipsoidal)	½
Expansion dome head (dished or ellipsoidal)	½

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built of one piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) The thickness of a dished tank head must be determined by the following formula but shall in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t=thickness of plate in inches;
P=calculated bursting pressure pounds per square inch;
L=main inside radius to which head is dished measured on concave side of head in inches;
S=minimum ultimate tensile strength in pounds per square inch (see paragraph (a) of this section;
E=efficiency of welded joint to shell=100 percent.

(f) The thickness of an ellipsoidal head shall be determined by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t=thickness of plate in inches;
P=calculated bursting pressure pounds per square inch;
d=inside diameter in inches;
S=minimum ultimate tensile strength in pounds per square inch (see paragraph (a) of this section).
E=efficiency of welded joint to shell=100 percent.

§ 78.292-5 *Material.* (a) All plates for tank and expansion dome must be made of an aluminum alloy to an approved specification and be suitable for fusion welding and not subject to rapid deterioration by the lading.

(b) Aluminum alloy castings used for fittings or attachment to tank must be made of material to an approved specification.

(c) All rivets must be of aluminum alloy to an approved specification. They must be handled and driven in a manner that will insure the requisite strength.

(d) All external projections which may be in contact with the lading must be made of material specified herein.

§ 78.292-6 *Tank heads.* (a) Tank heads must be of approved contour, and may be dished or ellipsoidal for pressure on concave side.

(b) Dished heads must have main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 5 inches.

(c) Ellipsoidal tank head shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.292-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by the Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of AAR Welding Code Appendix "W".

§ 78.292-8 *Manway ring, safety valve flange and bottom outlet nozzle flange or other attachments.* (a) These attachments may be riveted or fusion-welded. Riveted joints must be made metal to metal without interposition of other material. Rivets must be calked inside and outside. For computing rivet areas, the effective diameter of a driven rivet is the diameter of its reamed hole, which hole must in no case exceed nominal diameter of rivet by more than 1/16 inch. Use of rivets of less than ⅝ inch nominal diameter prohibited. Fusion-welding for securing these attachments in place must be of double welded butt joint type or double full-fillet lap joint type.

(b) *Calking.* All attachments riveted to tank must have the rivets and the joints formed by attachments calked on the inside of tank.

§ 78.292-9 *Stress-relieving.* (a) Not a specification requirement.

§ 78.292-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing the anchor to the tank is prohibited.

§ 78.292-11 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside of dome, of at least one percent of the total capacity of the tank and dome combined, except that when safety vent is applied to side of dome, the effective capacity of dome must be measured from top of safety vent opening in the side of dome to inside top of shell of tank.

(b) The opening in manway ring must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, and the dome pocket is not closed off in an approved manner, dome pocket drain holes must be provided in the tank shell with nipples projecting inside the tank at least 1 inch.

(c) The dome head must be of approved contour. The dome head must be of an aluminum alloy.

(d) The dome shell thickness shall be calculated by the formula in § 78.292-4 (e).

(e) The dome head, if dished, must be dished to a radius not exceeding 96 inches. Thickness of the dished dome head shall be calculated by the formula in § 78.292-4 (e).

(f) Dome head may be an ellipsoid of revolution in which the major axis shall be equal to the diameter of the dome shell and the minor axis shall be ½ of the major axis. The thickness in this case shall be determined by using formula of the main head. (See § 78.292-4 (f).)

(g) Tank shell shall be reinforced by the addition of a plate equal to or greater than shell in thickness and the cross sectional area shall exceed metal removed from dome opening, or tank shell shall be reinforced by a seamless saddle plate equal to or greater than shell in thickness and butt welded to tank shell. The reinforcing saddle plate shall be provided with a flued opening having a vertical flange of the diameter of the dome for butt welding shell of dome flange. The reinforcing saddle plate shall extend about the dome a distance measured along shell of tank at least equal to the extension at top of tank. Other approved designs may be used.

§ 78.292-12 *Closure for manway.* (a) The manway cover must be of approved type and designed to provide a secure closure of the manway.

(b) Manway covers must be of cast, forged or fabricated aluminum alloys or other approved materials. Manway rings must be made of cast, forged or fabricated aluminum alloys and must be of good weldable quality in conjunction with the metal of dome.

(c) Chains, if used to attach manway covers to outside of dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.292-13 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) When installed these devices must be of an approved design and made of materials not subject to rapid deterioration by the lading, and must be tightly closed. Protective housing not required, except as prescribed in paragraph (b) of this section. Unloading pipe must be securely anchored within the tank.

(b) When the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices including valves must be of an approved design and be provided with a protective housing. Provision must be made for closing pipe connections of valves.

§ 78.292-14 *Bottom outlets.* (a) Bottom outlet is prohibited, but tank may be equipped with a bottom washout nozzle of aluminum alloy not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements:

(1) The construction and closure of the bottom washout nozzle must be such that it is liquid tight and should the nozzle be broken, loss of contents will not occur.

(2) The extreme projection of the bottom washout nozzle must be at least 12 inches above the top of rail.

(3) Bottom washout nozzle may be cast, fabricated or forged metal. The nozzle must be of good weldable quality in conjunction with metal of tank.

(4) For bottom washout nozzles that project 6 inches or more from shell of tank, a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(5) The flange on the bottom washout nozzle must be of a thickness which will prevent distortion of the inside closure seat or closure casting by any change in contour of the shell, resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the washout nozzle will occur at or below the "V" groove.

(6) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

§ 78.292-15 *Safety devices.* (a) The tank must be equipped with a safety valve or safety vent at least 1¾ inches inside diameter mounted on top of expansion dome. Total valve discharge capacity must be sufficient to prevent building up pressure in tank in excess of 45 pounds per square inch.

(b) At least one safety valve or vent must be provided for each tank.

(c) The safety valve, if used, must be set to open at a pressure of 35 pounds per square inch and be vapor tight at 28 pounds per square inch. (For tolerance see § 78.292-20 (a).)

(d) If tank is equipped with a safety vent it must be closed with a frangible disc of suitable material of a thickness that will rupture at a pressure not exceeding 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. Tanks may also be equipped with an approved device that will permit continuous venting.

(e) Safety valve or safety vent flanges, if welded to dome, must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of dome.

§ 78.292-16 *Fixtures, reinforcements and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. When attachments are riveted, the edges of plates must be beveled so that the angle of the calking edge will be between 60 and 70 degrees with the flat surface of the attachment. The extreme calking edge distance, measured from center line of rivet hole, must be at least 1½ times the diameter of the hole and not more than that distance plus ¼ inch. The joints formed by attachment of all riveted external projections must be calked on the inside. All rivet heads on the inside and outside of tank and dome must be calked. Split calking is prohibited. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.292-17 *Interior heating systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater system and plug flanges, if welded to tank or dome, must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.292-18 *Closures for openings.* (a) All plugs must be solid, of cast, rolled or forged metal of approved material with standard pipe thread, of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs when inserted from the outside of tank must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.292-19 *Test of tanks.* (a) Each tank must be tested, before being put into service, by completely filling tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures except safety valves or safety vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing test is prohibited. Repairs in welded joints must be made as prescribed in § 78.292-7 (a).

(d) Test of interior heater systems. Before interior heater systems are placed in service, they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.292-20 *Tests of safety valves.* (a) Valve must be tested before being put into service, by attaching to an air line and applying pressure. The valve must open at the pressure prescribed in § 78.292-15 (c) with a tolerance of minus 3 pounds.

§ 78.292-21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103A-AL-W and specification number of material used in tank shell and expansion dome in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC-103A-AL-W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and dates of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.292-22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

37. Amend entire § 78.293 (18 F. R. 806, Feb. 7, 1953) (16 F. R. 9381, Sept. 15, 1951) (16 F. R. 5335 to 5341, June 6, 1951) (16 F. R. 5768, June 16, 1951) (49 CFR

1950 Rev., 1954 Supp., 78.293) to read as follows:

§ 78.293 *Specification ICC-110A500-W; metallic arc fusion-welded steel tanks to be mounted on a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.293-1 *Type and general requirements.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. All operating fittings must be located in one of the heads, and no openings of any sort are permitted in the cylindrical shell. Tanks must be securely attached to the car structure in a manner such that they may be removed for filling by the consignor and emptying by the consignee. Each tank must have a capacity of at least 1,600 pounds of water and not more than 2,600 pounds of water.

(b) The tanks must be fabricated by approved methods.

(c) For tanks made in foreign countries, a chemical analysis of material and all tests as specified must be carried out within the limits of the United States under supervision of a competent and disinterested inspector.

§ 78.293-2 *Thickness of plates.* (a) The wall thickness of the cylindrical portion of the tank must not be less than $^{11}/_{32}$ inch and, in addition, must not be less than that calculated by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t=thickness in inches of thinnest plate;
P=calculated bursting pressure in pounds per square inch, 1,250 pounds per square inch gauge minimum;
d=inside diameter in inches;
S=minimum specified ultimate tensile strength of plate in pounds per square inch;
E=efficiency of butt-welded joint=90 percent.

§ 78.293-3 *Material.* (a) All plates for the tank must be made of open-hearth or electric furnace boiler plate steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals, such as nickel.

(b) All plates must have their heat number and the name or brand of the manufacturer legibly stamped on them at the rolling mill.

(c) Lining is not a specification requirement. If applied, must be approved as to material and method of application.

§ 78.293-4 *Tank heads.* (a) The tank heads must be hot pressed with a straight flange of at least 1½ inches and with a radius of dish not greater than the diameter of the tank. The inside knuckle radius must not be less than 6 percent of the inside diameter of the vessel.

(b) The heads must be of one piece and either designed torispherical or ellipsoidal in form and designed convex outward. The thickness of the heads shall not be less than that determined by the following formula:

$$t=\frac{5PL}{6SE}$$

(2) For ellipsoidal heads having a ratio of major to minor axis of 2 to 1

$$t=\frac{Pd}{2SE}$$

where

t=minimum thickness in inches of finished head;
P=minimum bursting pressure=1,250 pounds per square inch gauge;
S=minimum specified ultimate tensile strength of plate material in pounds per square inch;
d=inside diameter in inches;
L=inside radius of dish;
E=1.0 for heads made from one plate.

(c) Threads for openings for tank heads must be American Standard Taper, tapped to gauge, clean cut, even and without checks to insure tight joints. If the thickness of the heads is not sufficient to give an adequate length of thread, the thickness must be increased by welding into the head a plate of sufficient thickness and of the same material as the head. The outside diameter of such plate must be at least twice the nominal diameter of the threaded opening.

§ 78.293-5 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.293-6 *Stress-relieving.* (a) All welding of the tank and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.293-7 *Tank mounting.* (a) The manner in which the tanks are supported on and securely attached to the car structure must be approved.

§ 78.293-8 *Protective rings.* (a) A plate ring flange must be welded to the outside of each head and extending a greater distance beyond the head than any fitting or attachment to the head, including the housing referred to in § 78.293-9 (a). This flange must be at least as thick as the shell plates and must slope or curve inward toward the axis such that the diameter at the outboard end is at least 2 inches less than the maximum diameter.

§ 78.293-9 *Protective housing and cover.* (a) All operating fittings shall be located in one head. Valves and other closures of openings in tank heads, except fusible plug vents and drain plugs, must be protected against accidental injury by a detachable cast or pressed shell housing at least $^{3}/_{16}$ inch thick, which must not project beyond the protective ring on the end of the tank and must be securely fastened to the tank head. This housing must be provided with an opening having an area equal to the total safety valve or vent discharge area.

(b) The upper head of tanks mounted vertically on car structure must be completely covered by a light metal cover designed to exclude moisture, cinders, and other foreign matter, and to be displaced by pressure of gas discharged through safety valves or vents.

§ 78.293-10 *Venting, loading and unloading valves.* (a) These valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 500 pounds per square inch without leakage. The valves must be screwed directly into tank heads or attached to tank heads by other approved methods. Provision must be made for closing the pipe connections of the valves.

§ 78.293-11 *Safety valves or vents.* (a) Unless prohibited for type of service in which tank is used, the tank must be equipped with one or more safety valves or vents of approved type, made of metal not subject to rapid deterioration by the lading and screwed directly into tank heads or attached to tank heads by other approved method. The total valve or vent discharge capacity must be sufficient to prevent building up pressure in tank in excess of ¾ the test pressure; when safety vents of the fusible plug type are used, the required discharge capacity must be available in each head.

(b) Tanks mounted vertically on the car structure must have safety valves, or vents of the frangible disc type, which must be located on the upper head.

(c) Safety valves must be set to open and vents of the frangible disc type must function at a pressure of not exceeding 375 pounds per square inch. Vents of the fusible plug type must function at a temperature of not exceeding 175 degrees Fahrenheit. (For tolerance see § 78.293-14.)

§ 78.293-12 *Fixtures.* (a) Siphon pipes and their couplings on the inside of the tank head and lugs on the outside of the tank head for attaching the valve protection housing may be fusion-welded in place, provided they are properly heat-treated at the time the entire tank is heat-treated. All other fixtures and appurtenances, except as provided for in §§ 78.293-7, 78.293-8, 78.293-9, 78.293-10 and 78.293-11 are prohibited.

§ 78.293-13 *Tests of tanks.* (a) After heat-treatment each tank must be tested, before being put into service, by completely filling the tank with water or other liquid of a similar viscosity of a temperature which must not exceed 100 degrees Fahrenheit during the test and applying a pressure of 500 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.293-5.

§ 78.293-14 *Tests of safety valves and vents.* (a) Each valve must be tested by air or gas before being put into service and also at intervals as prescribed by retest table No. 2 of § 73.31 of this chapter. The valve must open at a pressure not exceeding 375 pounds per square inch and be vapor tight at 300 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

(b) For safety vents of the frangible disc type, a sample of the disc used must burst at a pressure of not exceeding 375 pounds per square inch and be vapor tight at 300 pounds per square inch.

(c) For safety vents of the fusible plug type, a sample of the fusible plugs used must function at a temperature of not exceeding 175 degrees Fahrenheit and be vapor tight at a temperature of 130 degrees Fahrenheit.

§ 78.293-15 *Alterations and maintenance of tanks.* (a) All prescribed markings on tanks must be kept legible. Copy of the said markings, in letters and figures of the prescribed size stamped on a brass plate secured to the tank, is authorized. Markings must not be changed except as follows:

(1) By application of additional marks not affecting the test pressure or water capacity; these must not obliterate previously applied marks.

(2) By application of test pressure marks, or alteration of such marks, to indicate a reduced test pressure; authorized only for tanks that have not failed in the 5-year test.

(3) By change of serial numbers or ownership marks, or both; report in sufficient detail so that previous serial number and ownership mark can be determined for each tank, arranged by lot numbers or by consecutive serial numbers, must be filed with the Bureau of Explosives.

§ 78.293-16 *Marking.* (a) Each tank must be plainly and permanently marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be stamped into the metal of one head or flange ring, in letters and figures at least ⅜ inch high, as follows:

(1) ICC-110A500-W.

(2) Serial number (immediately below the stamped mark specified in subparagraph (1) of this paragraph).

(3) Inspector's official mark (immediately below the stamped mark specified in subparagraph (2) of this paragraph).

(4) Name, mark (other than trademark) or initials of company or person for whose use the tanks are being made, which must be recorded with the Bureau of Explosives.

(5) Date of tank test (month and year), such as 1-54 for January 1954, so placed that dates of subsequent tests may easily be added thereto.

(6) Water capacity—0000 pounds.

(7) Tanks made of clad plates must be stenciled on the tank (naming material) ------------ clad tank.

§ 78.293-17 *Inspection and reports.* (a) Purchaser of tank must provide for inspection by competent inspector as follows:

(1) The inspector must carefully inspect all plates from which tanks are to be made and records pertaining thereto, and plates which do not comply with the requirements of this specification must be rejected.

(2) The inspector must secure complete certified records, including chemical analyses and physical tests on samples taken from each heat of steel used in the manufacture of the plate.

(3) The inspector must report capacity in pounds of water and tare weight of each tank, and the minimum thickness of tank wall noted.

(4) The inspector must make such inspection as may be necessary to see that all the requirements of this specification are fully complied with, must see that the finished tanks are properly heat treated, and must witness all air and hydrostatic tests.

(5) The inspector must stamp his official mark on each accepted tank immediately below the serial number and make certified report (paragraph (b) of this section) to the builder, to the company or person for whose use the tanks are being made, to the builder of the car structure on which the tanks are to be mounted, if any, to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads.

(b) Inspector's report required in this section must be in the following form:

(Place) ------------------------
(Date) ------------------------

STEEL TANKS

It is hereby certified that drawings were submitted for these tanks under A. A. R. Application for Approval No. ------ and approved by the A. A. R. Committee on Tank Cars under date of ------------------------

Built for ---------------------- Company
Location at ----------------------------
Built by ---------------------- Company
Location at ----------------------------
Consigned to ------------------ Company
Location at ----------------------------
Quantity ----------------------------
Size -------------- inches outside diameter
by ------------------------ inches long

Marks stamped into the head or chime of the tank are:

Specification ICC ------------------------
Serial numbers ------- to ------- inclusive
Inspector's mark ------------------------
Test date ----------------------------
Water capacity (See Record of Hydrostatic Tests).
Tare Weights (Yes or No). (See Record of Hydrostatic Tests.)
These tanks were made by process of -------

The steel used was identified as indicated by the attached list showing the serial number of each tank, followed by the heat number of the plate, head, and bottom used in the tank.

The steel used was verified as to chemical analysis and record thereof is attached hereto. The heat numbers were stamped into the metal.

All material, such as plates, billets, and seamless tubing, was inspected and each tank was inspected both before and after closing in the ends; all that was accepted was found free from seams, cracks, laminations, and other defects which might prove injurious to the strength of the tank. The processes of manufacture and heat treatment of tanks were supervised and found to be efficient and satisfactory.

The tank walls were measured and the minimum thickness noted was ---- inch. The outside diameter was determined by a close approximation to be ---- inches. The wall stress was calculated to be ---- pounds per square inch under an internal pressure of ---- pounds per square inch.

Hydrostatic tests, bend and tensile tests of material, and other tests as prescribed in this specification were made in the presence of the inspector and all material and tanks accepted were found to be in compliance with the requirements of this specification. Records thereof are attached hereto.

I hereby certify that all of these tanks proved satisfactory in every way and comply with the requirements of Interstate Commerce Commission Specification No. -----

(Signed) ------------------------
(Inspector)

(Place) ------------------------
(Date) ------------------------

RECORD OF CHEMICAL ANALYSIS OF STEEL FOR TANKS

Numbered ---------- to ---------- inclusive
Size -------------- inches outside diameter
by ------------------------ inches long
Made by ---------------------- Company
For -------------------------- Company

Heat No.	Chemical analysis							
	C	P	S	Si	Mn	Ni	Cr	
------------	----	----	----	----	-----	----	----	----
------------	----	----	----	----	-----	----	----	----
------------	----	----	----	----	-----	----	----	----

The analyses were made by:

(Signed) ------------------------

(Place) ------------------------
(Date) ------------------------

RECORD OF TENSILE TESTS OF MATERIAL IN TANKS

Numbered ---------- to ---------- inclusive
Size -------------- inches outside diameter
by ------------------------ inches long
Made by ---------------------- Company
For -------------------------- Company

Heat No.	Yield point (pounds per square inch)	Tensile strength (pounds per square inch)	Elongation (percent in 8 inches)	Reduction of area (percent)	Bend test
------------	-------	-------	-------	-------	-------
------------	-------	-------	-------	-------	-------
------------	-------	-------	-------	-------	-------

(Signed) ------------------------

RECORD OF HYDROSTATIC TESTS ON TANKS

Numbered ---------- to ---------- inclusive
Size -------------- inches outside diameter
by ------------------------ inches long
Made by ---------------------- Company
For -------------------------- Company

Serial Nos. of tanks tested	Actual test pressure (pounds per square inch)	Total expansion (cc.)[1]	Permanent expansion (cc.)[1]	Percent ratio of permanent expansion to total expansion	Tare weight pounds[2]	Capacity in pounds of water at 60° F.

[1] If the tests are made by a method involving the measurement of the amount of liquid forced into the tank by the test pressure then the basic data, on which the calculations are made, such as the pump factors, temperature of liquid coefficient of compressibility of liquid, etc., must also be given.

[2] Do not include protective housing and cover but state whether with or without valves.

(Signed) ______________________

(Place) ______________________

(Date) ______________________

(c) Before a tank built under this specification is placed in service, the builder must furnish the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that the tank and its appurtenances comply with all the requirements of this specification, including information as to the serial numbers, date of test, and ownership marks on the tanks. In the event the owner of the tank instead of the builder elects to furnish appurtenances such as valve protection caps, loading and unloading valves or vents of the frangible disc or fusible plug type, the owner must furnish to the Bureau of Explosives and the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that these appurtenances comply with all the requirements of this specification.

(d) In case of alterations of or additions to tank or equipment from original design and construction or of repairs, there must be furnished to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in detail of the repairs, alterations or additions made to each tank covered by a particular application, showing the serial number of each tank involved and stating that heat-treatment called for by the particular type of repair authorized has been performed and, that after repairs, alterations, or additions, the tests prescribed in § 78.293-13 were made, results of hydrostatic tests reported, and tank marked as prescribed by retest Table No. 2 of § 73.31 of this chapter.

38. Amend entire § 78.294 (18 F. R. 3145, June 2, 1953) (17 F. R. 9842, Nov. 1, 1952) (17 F. R. 7287, Aug. 9, 1952 (49 CFR 1950 Rev., 1954 Supp., 78.294) to read as follows:

§ 78.294 *Specification ICC-105A100-AL-W; lagged fusion-welded aluminum tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.294-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.294-2 *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of the tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.294-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 495 pounds per square inch.

§ 78.294-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;

P = calculated bursting pressure pounds per square inch;

d = inside diameter in inches;

S = minimum ultimate tensile strength in pounds per square inch as follows:

ASTM B-178 Alloy 996A =9,500 p. s. i.

ASTM B-178 Alloy 990A =11,000 p. s. i.

ASTM B-178 Alloy M1A =14,000 p. s. i.

ASTM B-178 Alloy GR20A=25,000 p. s. i.

ASTM B-178 Alloy GS11A=24,000 p. s. i.

ASTM B-178 Alloy GR40A=30,000 p. s. i.

E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(c) The thickness of an ellipsoidal head shall be determined by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t = thickness of plate in inches;

P = calculated bursting pressure, pounds per square inch;

d = inside diameter in inches;

S = minimum ultimate tensile strength in pounds per square inch (see paragraph (a) of this section);

E = efficiency of welded joint to shell = 100 percent.

§ 78.294-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.294-6 *Material.* (a) All plates for tank and manway nozzle must be made of an aluminum alloy to an approved specification and be suitable for fusion welding and not subject to rapid deterioration by the lading.

(b) Aluminum alloy castings used for fittings or attachment to tank must be made of material to an approved specification.

(c) All external projections which may be in contact with the lading must be made of material specified herein.

§ 78.294-7 *Tank heads.* (a) Tank heads must be of approved contour and must be ellipsoidal for pressure on the concave side.

(b) Ellipsoidal tank head shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.294-8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.294-9 *Stress relieving.* (a) Not a specification requirement.

§ 78.294-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.294-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of cast, forged, or fabricated aluminum alloy at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion welding. Fusion welding for securing this attachment in place must be of the double-welded butt joint type or double full fillet lap joint type.

(b) Manway cover must be of forged or rolled aluminum alloy at least 2½ inches thick, or other approved material at least 2¼ inches thick, machined to approved dimensions. Manway cover must be attached to nozzle by through bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel, or other approved materials must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weatherproof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.294–12 *Venting, loading and unloading, gauging and sampling devices.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of valves must be closed with approved screw plugs chained or otherwise fastened to prevent misplacement.

(b) Interior pipes of the loading and unloading valves, except as prescribed in paragraph (d) of this section may be equipped with excess flow valves of approved design, and must be securely anchored.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 100 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with check valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks for use in the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with check valves of an approved design.

§ 78.294–13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of metal not subject to rapid deterioration by lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 75 pounds per square inch.

(b) The safety valves must be set to open at a pressure not exceeding 75 pounds per square inch. (For tolerance see § 78.294–17 (a).)

§ 78.294–14 *Fixtures, reinforcements, and attachments, not otherwise specified.* (a) Attachments, other than the anchorage, interior pipe bracing, and those mounted on manway cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved method.

§ 78.294–15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.294–16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before the tank lagging is applied, by completely filling tank and manway nozzle with water or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 100 pounds per square inch. The tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.294–8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.294–17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 75 pounds per square inch and be vapor tight at 60 pounds per square inch which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.294–18 *Markings.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC–105A100AL–W and specification number of material used in tank shell and manway nozzle in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC–105A100AL–W must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(7) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraphs (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either behind or within 3 feet of the right or left side of ladder, or ladders, if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

§ 78.294–19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retest must be rendered to the Bureau of Explosives and car owner.

39. Amend entire § 78.295 (17 F. R. 9842, Nov. 1, 1952) (49 CFR 1950 Rev., 1954 Supp., 78.295) to read as follows:

§ 78.295 *Specification ICC–106A800-NCI; fusion-welded nickel-chromium-iron alloy tanks with fusion-welded longitudinal barrel sections, to be mounted on a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c), and (d).

§ 78.295–1 *Type and general requirements.* (a) Tanks built under this specification must be cylindrical with heads designed convex inward. The end of the shell shall be flanged-in in such a manner that the heads are locked in independent of the strength of the fillet welds, as well as providing a chime to which handling hooks can be attached. The thickness of the cylindrical portion into which the head is driven and the thickness of the flat flanged-in ends shall be at least equal to the head thickness, whereas the cylindrical portion next to the circumferential welds joining the heads to the shell shall be thinned down to the shell plate thickness. All openings must be located in the heads. Tanks must be securely attached to the car structure in such a manner that they may be removed for filling by the consignor and emptying by the consignee. Each tank must have a capacity of at least 1,600 pounds and not more than 2,500 pounds of water.

(b) The tanks must be fabricated by approved methods.

(c) For tanks made in foreign countries, a chemical analysis of material and all tests as specified must be carried out within the limits of the United States under the supervision of a competent and disinterested inspector.

§ 78.295-2 *Thickness of plates.* (a) The wall thickness of tanks must be at least 13/32 inch and must be such that at the test pressure the calculated fiber stress in the wall of tank or in the longitudinal weld seam will not be in excess of 35,000 pounds per square inch, as calculated by the following formula:

$$S=\frac{P(1.3D^2-0.4d^2)}{D^2-d^2}$$

where

P=interior test pressure in pounds per square inch;
D=outside diameter in inches;
d=inside diameter in inches;
S=wall stress in pounds per square inch.

(b) Tank head shall have a thickness equal to at least twice the shell thickness and must also be of sufficient thickness to provide for the threading of openings therein as prescribed in § 78.295-4 (b).

§ 78.295-3 *Material.* (a) All plates and forgings for tank and heads shall be annealed uniform nickel-chromium-iron alloy of good welding quality, free from cracks, laminations, or other defects injurious to the finished tank, and shall have the following chemical composition and tensile properties:

Nickel (plus cobalt)	75.00 percent minimum.
Chromium	12.00 to 15.00 percent.
Iron	9.00 percent maximum.
Copper	0.50 percent maximum.
Manganese	1.00 percent maximum.
Carbon	0.15 percent maximum.
Silicon	0.50 percent maximum.
Sulfur	0.02 percent maximum.

(1) Tensile strength 80,000 to 110,000 pounds per square inch. Yield point (0.2 percent offset) 30,000 to 60,000 pounds per square inch. Elongation in 2 inches 35 percent minimum.

(2) A test specimen must be capable of being bent cold through 180 degrees flat on itself without cracking on the outside of the bent portion. The tensile and bend specimens must be taken from the finished rolled or forged material after annealing, and there must be at least one tensile and one bend test on specimen from each heat.

(b) All plates and forgings must have their heat number and name or brand of manufacturer legibly stamped on them at the mill.

§ 78.295-4 *Tank heads.* (a) The tank heads must be hot pressed, flanging and dishing being done in one heat, so as to make a flange at least 3 inches deep, a mean crown radius not greater than the inside diameter of the head and a mean knuckle radius equal to 3½ times the head thickness. They must be inserted into the tank shell and forgings with flange extending outward and have a snug driving fit into the shell.

(b) Threads for openings in tank heads for valves and vents must be American Standard taper, tapped to gauge, clean cut, even and without checks to insure tight joints.

§ 78.295-5 *Welding.* (a) All joints and seams shall be welded by qualified welders using approved methods of welding and approved filler rod having the same composition as the tank plate. Deposited metal must be fused smoothly and uniformly into plate surface at the top of the joint. All welds shall be free from voids or slag inclusions. Main longitudinal joint shall be double-welded butt joint made with a procedure insuring proper fusion and penetration. Heads shall be fillet welded to the end forgings with welds having a throat at least 25 percent greater than the head thickness. The circumferential welds joining the end forgings and shell shall be of the butt type with nickel-chromium-iron alloy backing strips to insure complete fusion. Welded joint shall be tested by specimens and radiographs.

(b) Alternate welding procedure: Longitudinal seams may be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints fabricated by means of fusion-welding must be in accordance with the requirements of AAR Welding Code, Appendix W.

§ 78.295-6 *Heat treatment.* (a) Each finished tank, before being subjected to the hydrostatic test, must be uniformly and properly heat-treated by heating to a temperature of 1,400 degrees Fahrenheit for 1½ hours in a nonoxidizing furnace atmosphere so as to remove any undue strains due to processes of manufacture.

§ 78.295-7 *Tank mounting.* (a) The manner in which tanks are mounted on and securely attached to the car structure must be approved.

§ 78.295-8 *Protective housing and cover.* (a) Valves and other closures of openings in tank heads, except fusible plug vents, must be protected against accidental injury by a detachable cast or pressed steel housing at least $\frac{3}{16}$ inch thick, which must not project beyond the flanged ends of the tank and must be securely fastened to tank head. Housing must be provided with an opening having an area equal to the total safety valve or vent discharge area.

(b) The upper head of tanks mounted vertically on the car structure must be completely covered by a light metal cover designed to exclude moisture, cinders, and other foreign matter, and to be displaced by pressure of gas discharged through safety valves or vents.

§ 78.295-9 *Venting, loading and unloading valves.* (a) These valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 800 pounds per square inch without leakage. The valves must be screwed directly into tank heads or attached to tank heads by other approved methods. Provision must be made for closing the pipe connections of the valves.

§ 78.295-10 *Safety valves or vents.* (a) Unless prohibited for type of service in which tank is used, the tank must be equipped with one or more safety valves or vents of approved type, made of metal not subject to rapid deterioration by the lading and screwed directly into tank heads or attached to heads by other approved methods. The total valve or vent discharge capacity must be sufficient to prevent building up of pressure in tank in excess of ¾ of the test pressure; when safety vents of the fusible plug type are used, the required discharge capacity must be available in each head.

(b) Tanks mounted vertically on the car structure must have safety valves, or vents of the frangible disc type, which must be located on the upper head.

(c) Safety valves must be set to open and vents of the frangible disc type must function at a pressure of not exceeding 600 pounds per square inch. Vents of the fusible plug type must function at a temperature of not exceeding 175 degrees Fahrenheit. (For tolerance see § 78.295-13 (a), (b) and (c).)

§ 78.295-11 *Fixtures.* (a) Siphon pipes and their couplings on the inside of the tank head and lugs on the outside of the tank head for attaching the valve protective housing may be fusion-welded in place in accordance with A. A. R. Welding Code Appendix W, provided they are properly heat-treated in accordance with § 78.295-6 (a) at the time the entire tank is heat-treated. All other fixtures and appurtenances, except as provided in §§ 78.295-7, 78.295-8, 78.295-9 and 78.295-10, are prohibited.

§ 78.295-12 *Tests of tank.* (a) After heat-treatment tanks must be subjected to hydrostatic test in a water jacket, or other accurate method, operated so as to obtain reliable data. No tank shall have been subjected previously to internal pressure within 100 pounds of the test pressure. Each tank must be tested to 800 pounds per square inch. Pressure must be maintained for 30 seconds and sufficiently longer to insure complete expansion of tank. Pressure gauge must permit reading to accuracy of 1 percent. Expansion gauge must permit reading of total expansion to accuracy of 1 percent. Expansion must be recorded in cubic centimeters.

(b) Permanent volumetric expansion must not exceed 10 percent of total volumetric expansion at test pressure.

(c) Each finished tank must be subjected to interior air pressure test of at least 100 pounds per square inch under conditions favorable to detection of any leakage. No leaks shall appear.

(d) Repairs of leaks detected in manufacture or test must be made by the same process as employed in manufacture of tank. Calking, soldering, or similar repairing is prohibited.

§ 78.295–13 *Tests of safety valves and vents.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure of not exceeding 600 pounds per square inch and be vapor tight at 480 pounds per square inch which limiting pressures must not be affected by any auxiliary closure of other combination.

(b) For safety vents of the frangible disc type. A sample of the discs used must burst at a pressure of not exceeding 600 pounds per square inch and be vapor-tight at 480 pounds per square inch.

(c) For safety vents of the fusible plug type. A sample of the fusible plugs used must function at a temperature of not exceeding 175 degrees Fahrenheit, and be vapor-tight at a temperature of 130 degrees Fahrenheit.

§ 78.295–14 *Alterations and maintenance of tanks.* (a) All prescribed markings on tanks must be kept legible. Copy of the said markings, in letters and figures of the prescribed size stamped on a brass plate secured to the tank, is authorized. Markings must not be changed except as follows:

(1) By application of additional marks not affecting the test pressure or water capacity; these must not obliterate previously applied marks.

(2) By application of test pressure marks, or alteration of such marks, to indicate a reduced test pressure; authorized only for tanks that have not failed in the 5-year test.

(3) By change of serial numbers or ownership marks, or both. A report must be filed with the Bureau of Explosives in sufficient detail so that previous serial number and ownership mark can be determined for each tank, arranged by lot numbers or by consecutive serial numbers.

§ 78.295–15 *Marking.* (a) Each tank must be plainly and permanently marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be stamped into the metal of one head or chime, in letters and figures at least ⅜ inch high, as follows:

(1) ICC–106A800NCI.

(2) Serial number immediately below the stamped mark specified in subparagraph (1) of this paragraph.

(3) Inspector's official mark immediately below the stamped mark specified in subparagraph (2) of this paragraph.

(4) Name, mark (other than trademark), or initials of company or person for whose use the tanks are being made, which must be recorded with the Bureau of Explosives.

(5) Date of tank test (month and year), such as 1–54 for January 1954, so placed that date of subsequent tests may easily be added thereto.

(6) Water capacity—0000 pounds.

§ 78.295–16 *Inspection and reports.* (a) Purchaser of tanks must provide for inspection by a competent inspector as follows:

(1) The inspector must carefully inspect all plates from which tanks are to be made, and records pertaining thereto, and plates which do not comply with the requirements of this specification must be rejected.

(2) The inspector must secure complete certified records, including chemical analyses and physical tests on samples taken from each heat of steel used in the manufacture of the plate.

(3) The inspector must report capacity in pounds of water and tare weight of each tank and the minimum thickness of tank wall noted.

(4) The inspector must make such inspection as may be necessary to see that all the requirements of this specification are fully complied with, must see that the finished tanks are properly heat-treated, and must witness all air and hydrostatic tests.

(5) The inspector must stamp his official mark on each accepted tank immediately below the serial number, and make certified report (see paragraph (b) of this section) to the builder, to the company or person for whose use the tanks are being made, to the builder of the car structure on which the tanks are to be mounted, if any, to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads.

(b) Inspector's report required herein must be in the following form:

(Place) ------------------------
(Date) ------------------------

STEEL TANKS

It is hereby certified that drawings were submitted for these tanks under A. A. R. Application for Approval No. ---------- and approved by the A. A. R. Committee on Tank Cars under date of --------------------

Built for -------------------- Company
Location at --------------------------
Built by -------------------- Company
Location at --------------------------
Consigned to ---------------- Company
Location at --------------------------
Quantity -----------------------------
Size ------------- inches outside diameter
by --------------------- inches long

Marks stamped into the head or chime of the tank are:

Specification ICC ---------------------
Serial numbers ------- to ------- inclusive
Inspector's mark ----------------------
Owner's mark --------------------------
Test date -----------------------------
Watercapacity (See Record of Hydrostatic Tests)
Tare weights (Yes or No.) (See Record of Hydrostatic Tests.)

These tanks were made by process of -----.

The steel used was identified as indicated by the attached list showing the serial number of each tank, followed by the heat number of the plate, head, and bottom used in the tank.

The steel used was verified as to chemical analysis and record thereof is attached hereto. The heat numbers were stamped into the metal.

All material, such as plates, billets, and seamless tubing, was inspected both before and after closing in the ends; all that was accepted was found free from seams, cracks, laminations, and other defects which might prove injurious to the strength of the tank. The processes of manufacture and heat treatment of tanks were supervised and found to be efficient and satisfactory.

The tank walls were measured and the minimum thickness noted was ----------- inch. The outside diameter was determined by a close approximation to be ----------- inches. The wall stress was calculated to be ------ pounds per square inch under an internal pressure of ------ pounds per square inch.

Hydrostatic tests, bend and tensile tests of material, and other tests, as prescribed in this specification were made in the presence of the inspector and all material and tanks accepted were found to be in compliance with the requirements of this specification. Records thereof are attached hereto.

I hereby certify that all of these tanks proved satisfactory in every way and comply with the requirements of Interstate Commerce Commission Specification No. ------.

(Signed) ------------------------
(Inspector)

(Place) ------------------------
(Date) ------------------------

RECORD OF CHEMICAL ANALYSIS OF STEEL FOR TANKS

Numbered----------- to --------- inclusive
Size ------------- inches outside diameter
by ---------------------- inches long
Made by ---------------------- Company
For -------------------------- Company

Heat No.	Chemical analysis						
	C	P	S	Si	Mn	Ni	Cr
----------------	----	----	----	----	------	----	----
----------------	----	----	----	----	------	----	----
----------------	----	----	----	----	------	----	----
----------------	----	----	----	----	------	----	----

The analyses were made by:

(Signed) ------------------------
(Place) ------------------------
(Date) ------------------------

RECORD OF HYDROSTATIC TESTS ON TANKS

Numbered ---------- to ---------- inclusive
Size ------------- inches outside diameter
by ------------------------ inches long
Made by ---------------------- Company
For -------------------------- Company

Serial Nos. of tanks tested	Actual test pressure (pounds per square inch)	Total expansion (cc.)[1]	Permanent expansion (cc.)[1]	Percent ratio of permanent expansion to total expansion	Tare weight (pounds)[2]	Capacity in pounds of water at 60° F.
------------	--------	------	------	--------	------	------
------------	--------	------	------	--------	------	------
------------	--------	------	------	--------	------	------

[1] If the tests are made by a method involving the measurement of the amount of liquid forced into the tank by the test pressure then the basic data, on which the calculations are made, such as the pump factors, temperature of liquid, coefficient of compressibility of liquid, etc., must also be given.

[2] Do not include protective housing and cover but state whether with or without valves.

(Signed) ------------------------

(c) Before a tank built under this specification is placed in service, the builder must furnish to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of

American Railroads, a report in proper form certifying that the tank and its equipment comply with all the requirements of this specification including information as to the serial numbers, dates of test, and ownership marks on the tanks.

(d) In the event the owner of the tank instead of the builder elects to furnish the appurtenances such as valve protection caps, loading and unloading valves, and safety valves or vents of the frangible disc or fusible plug type, the owner must furnish to the Bureau of Explosives, and to the Secretary, Mechanical Division, Association of American Railroads, a report in proper form certifying that these appurtenances comply with all the requirements of this specification.

(e) In case of alterations of or additions to tanks or equipment from original design and construction or of repairs, there must be furnished to the owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in detail of the repairs, alterations, or additions made to each tank covered by a particular application showing the serial number of each tank involved and stating that heat-treatment called for by the particular type of repair authorized has been performed and that after repairs, alterations, or additions the tests prescribed in § 78.295-12, were made, results of hydrostatic tests reported, and tanks marked as prescribed by retest table No. 2 of § 73.31 of this chapter.

40. Amend entire § 78.296 (17 F. R. 9842 to 9844, Nov. 1, 1952) (49 CFR 1950 Rev., 1954 Supp., 78.296) to read as follows:

§ 78.296 *Specification ICC-103B100-W; rubber lined fusion-welded steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.296-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.296-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.296-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 495 pounds per square inch.

§ 78.296-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheet	Shell sheet	Tank head	Dome shell	Dome head
	Inch	*Inch*	*Inch*	*Inch*	*Inch*
87 inches or under	½	½	½	⅜	¾
Over 87 to 96 inches	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{9}{16}$	⅜	⅝

(c) Tank must be lined with rubber at least $\frac{5}{32}$ inch thick except over all rivets and seams formed by attachments where the lining must be double thickness. The lining must overlap at least 1½ inches at all edges, which must be straight and be beveled to an angle of approximately 45 degrees. A rubber reinforcement pad at least 4½ feet square and at least ½ inch thick must be applied by vulcanizing to the lining on bottom of tank directly under the dome. Edges of pad must be beveled to an angle of approximately 45 degress. An opening in this pad for sump is permitted. No rubber shall be under tension when applied except that due to conformation over rivet heads. Interior of tank must be free from scale, oxidation, moisture, and all foreign matter during the lining operation.

(d) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

§ 78.296-5 *Material.* (a) All plates for tank and expansion dome must be made of open-hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent.

(b) All castings used for fittings or attachments to tank must be of material to an approved specification. The use of cast iron prohibited.

(c) Rivets, if used, must be of the same quality as used for steam boilers and other pressure vessels and be made of steel to an approved specification.

(d) Each tank must be lined with acid-resisting rubber, vulcanized or bond directly or otherwise attached to the metal tank, to provide a non-porous laminated lining.

(e) All external projections must be made of materials specified herein.

§ 78.296-6 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ of the major axis.

§ 78.296-7 *Welding.* (a) All joints must be fusion welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by the Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code, Appendix W.

§ 78.296-8 *Manway ring, safety valve flange, sump flange or other attachments.* (a) These attachments must be secured to tank by fusion-welding. Fusion welding for securing attachments in place must be of the double-welded butt joint type or double full-fillet lap joint type. All projection edges of plates and castings on inside of tank must be rounded and free from fins or other irregular projections. Castings must be free from porosity.

§ 78.296-9 *Stress relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.296-10 *Tank mounting.* (a) The manner in which tank is supported on and securely attached to the car structure must be approved.

§ 78.296-11 *Expansion dome.* (a) The expansion dome must have a capacity, measured from the inside top of shell of tank to bottom of manway cover of at least 1 percent of the capacity of tank and dome combined.

(b) The opening for manway, before lining, must be at least 18 inches in diameter, the opening in the tank shell at the dome shall be fully cut out or flued to the inside diameter of the dome, which shall not exceed 42 inches. Tank shell at dome must be reinforced in an approved manner.

(c) Dome head must be made of steel and to an approved contour. If dished, the knuckle radius shall be at least 6 percent of the spherical dish radius, and the thickness shall not be less than that specified in § 78.296-4 (b). The inside spherical radius shall not be in excess of the diameter of the dome. Dome head may be flued for attachment of a manway flange having a minimum inside diameter of 18 inches.

§ 78.296-12 *Closures for manway.* (a) The manway cover must be of approved type and designed to provide a secure closure of the manway.

(b) Manway cover must be made of a suitable metal of approved thickness, and must be attached to manway flange by through bolts not entering the tank. The top, bottom where exposed to lading, and edge of manway cover must be rubber covered as prescribed in §§ 78.296-4 (c) and 78.296-5 (d). Through bolt holes must be lined with rubber at least ⅛ inch in thickness. Cover made of metal not affected by lading need not be rubber covered. All rubber surfaces on outside of tank or fittings must be protected with an age-resisting coating. All attachments must be made of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of manway cover.

(c) The shearing value of the bolts attaching the protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway flange.

(d) All joints between manway cover and manway flange, and between manway cover and valves or any appurtenances mounted thereon, must be made tight against vapor pressure.

§ 78.296-13 *Venting, loading and unloading, gauging, and air inlet devices.* (a) These devices must be of approved design and withstand a pressure of 100 pounds per square inch without leakage. They must be bolted to fittings or seatings on the manway cover. Connections to valves must be closed with blind flanges bolted tightly over valve outlets, chained or otherwise fastened to prevent misplacement. Interior pipes of these devices extending into the tank shell, must be anchored at their lower ends.

(b) Venting, loading and unloading, gauging, and air inlet devices made of material affected by the lading must have all surfaces rubber covered as prescribed in §§ 78.296-4 (c) and 78.296-5 (d).

(c) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover must have a suitable stop to prevent cover striking loading and unloading connections and be hinged on one side only with approved riveted pin or rod with nuts and cotters. Opening in wall of housing must be equipped with screw plugs or other closures.

§ 78.296-14 *Bottom outlet.* (a) Bottom outlet is prohibited. Bottom sump is permissible. If used it must be welded to tank and must be of cast, fabricated or forged metal of good weldable quality in conjunction with metal of tank.

§ 78.296-15 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of material not subject to rapid deterioration by lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 75 pounds per square inch.

(b) The safety valves must be set to open at a pressure not exceeding 75 pounds per square inch. (For tolerance see § 78.296-20 (a).)

§ 78.296-16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than the anchorage, sump, and those mounted on manway cover, are prohibited. Interior heater systems, when installed, must be made of material not affected by the lading. They must be constructed so that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.296-17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater system closure flanges welded to tank or dome, must be made of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.296-18 *Closures for openings.* (a) Closures for all openings must have all surfaces exposed to the lading rubber covered or be made of material not affected by the lading.

§ 78.296-19 *Tests of tanks.* (a) Each tank must be tested, before rubber lining is applied, by completely filling the tank and dome with water, or other liquids having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 100 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety valves, must be in place while test is made. After tank is rubber lined, no further tests are required.

(b) If tanks are to be lagged the test of tanks must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.296-7 (a).

(d) Test of interior heater system. Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.296-20 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The value must open at a pressure not exceeding 75 pounds per square inch and be vapor tight at 65 pounds per square inch, which limiting pressures must not be effected by any auxiliary closure or other combination.

§ 78.296-21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103B100-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, such as application of riveted anchors, etc., in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) "Rubber lined tank—pressure test not required", stenciled on tank, or jacket if lagged, instead of record of test of tank.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.296-22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and the car owner.

41. Add § 78.297 (15 F. R. 8523, Dec. 2, 1950) (49 CFR 78.297, 1950 Rev.) to read as follows:

§ 78.297 *Specification ICC-103D-W; fusion welded alloy steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American

Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.297-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, 1 expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.297-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than 1/8 inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the inside surface of the metal jacket shall be given a protective coating.

§ 78.297-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.297-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t=thickness in inches of thinnest plate;
P=calculated bursting pressure pounds per square inch;
d=inside diameter in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of longitudinal welded joint=90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t=thickness of plate in inches;
P=calculated bursting pressure pounds per square inch;
L=main inside radius to which head is dished measured on concave side in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	1/2	5/16	5/16
Over 78 to 96 inches	1/2	3/8	5/16	1/2	5/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	5/16	1/2

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built on 1 piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than 3/8 inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than 3/4 inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.297-5 *Material.* (a) All plates for tank and expansion dome, must be to an approved specification and be made of a metal capable of resisting the action of nitric acid as follows: The maximum corrosion rate in inches penetration per month in the standard 65 percent boiling nitric acid test shall be 0.006" for the straight chromium-bearing stainless steel and 0.0015" for any of the chromium nickel alloys and modified chromium nickel type, this figure to be an average of five 48-hour periods.

(b) All alloy castings and forgings used for fittings or attachments to tank must be to an approved specification and not subject to rapid deterioration by the lading.

§ 78.297-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.297-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with requirements of AAR Welding Code Appendix "W".

§ 78.297-8 *Manway ring, safety valve flange, and sump flange or other attachments.* (a) These attachments must be fusion-welded to tank or dome. Fusion-welding for securing these attachments in place must be of the double-welded butt joint type or double full-fillet lap joint type.

§ 78.297-9 *Heat treatment.* (a) All welding of the tank shell and of attachments welded directly thereto must be heat treated as a unit to remove stresses and at the proper temperature to obtain the corrosion resistance specified in § 78.297-5 (a).

§ 78.297-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.297-11 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 2 percent of the total capacity of the tank and dome combined.

(b) The opening for manway must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, dome pocket drain holes must be provided in the tank shell with nipples extending inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.297-12 *Closures for manway.* (a) The manway cover must be of approved type and designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) Manway ring and cover must be made of the metal prescribed in § 78.297-5 (a) or (b), whichever applies.

(c) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.297-13 *Gauging, bottom outlet valve operating rod, venting, loading and unloading, and air inlet devices extending* *through dome of tank.* (a) Not specification requirements. When installed, these devices including their valves and fittings must be of approved design, made of materials not subject to rapid deterioration by the lading. These devices including their valves must be provided with a protective housing. Unloading pipe must be securely anchored within the tank. Provision must be made for closing pipe connections of valves.

§ 78.297-14 *Bottom outlets.* (a) The bottom outlet, when installed, must be made of metal not subject to rapid deterioration by the lading, be of approved construction, and be provided with a valve at its upper end and a liquid tight closure at its lower end.

(b) The valve operating mechanism and outlet nozzle construction must be such as to insure against unseating of valve due to stresses or shocks incident to transportation.

(c) Bottom outlet nozzle may be cast, fabricated or forged metal. If outlet nozzle is welded to tank, it must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank.

(d) To provide for the attachment of standard unloading connections, the bottom of the main portion of the outlet nozzle or some fixed attachments thereto, must have Unified Form Threads, 4 threads to the inch.

(e) For outlet nozzles that extend 6 inches or more from shell of tank a "V" groove must be cut (not cast) in the upper part of outlet nozzle at a point immediately below lowest part of valve to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. In the case of steam-jacketed outlet nozzles this groove must be below the steam chamber but above the bottom of center sill construction. Where outlet nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(f) The flange on the outlet nozzle must be of a thickness which will prevent distortion of the valve seat or valve by any change in contour of the shell resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the outlet nozzle will occur at or below the "V" groove.

(g) The valve must have no wings or stem projecting below the "V" groove in the outlet nozzle. The valve and seat must be readily accessible or removeable for repairs, including grinding.

(h) The outlet valve operating mechanism must have means for compensating for variation in the vertical diameter of the tank produced by expansion, weight of the liquid contents, or other causes, and should operate from the interior of the tank, but in the event the rod is carried through the dome, leakage must be prevented by packing in stuffing box and cap nut.

(i) In no case must extreme projection of bottom outlet equipment extend to within 12 inches above top of rail. All bottom outlet reducers and closures and their attachments must be secured to the car by at least ⅜ inch chain or its equivalent, except that outlet closure plugs or outlet closure flange and ¾ inch solid screw drain plug may be attached by ¼ inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve must be closed by a plug or cap.

§ 78.297-15 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design at least 2 inches inside diameter mounted on top of expansion dome. Total valve discharge capacity must be sufficient to prevent building up pressure in tank in excess of 45 pounds per square inch.

(b) One or more safety valves must be provided for each tank or compartment thereof.

(c) The safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor tight at 28 pounds per square inch. For tolerance see § 78.297-20 (a).

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped must have 1 safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not for Flammable Liquids."

(e) Safety valve or safety vent flanges must be of cast, forged, or fabricated metal not subject to rapid deterioration by the lading, and be of good weldable quality in conjunction with metal of dome.

§ 78.297-16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by welding. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of the contents of the tank.

§ 78.297-17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, must be of cast, forged or fabricated material complying with the requirements of § 78.297-5 (a) or (b), whichever applies.

§ 78.297-18 *Closures for openings.* (a) All plugs must be solid, made of materials not subject to rapid deterioration by the lading, with standard pipe thread, and must be of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.297-19 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All closures, except safety valves or vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.297-7 (a).

(d) Tests of interior heater systems. Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.297-20 *Tests of safety valves.* (a) Valve must be tested before being put into service, by attaching to an air line and applying pressure. The valve must open at the pressure prescribed in § 78.297-15 (c) with a tolerance of plus or minus 3 pounds.

§ 78.297-21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103D-W and specification number of material used in tank shell and expansion dome in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC-103D-W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and

by whom, stenciled on the tank, or jacket if lagged.

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.297-22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

42. Add § 78.298 (15 F. R. 8523, Dec. 2, 1950) (49 CFR 78.298, 1950 Rev.) to read as follows:

§ 78.298 *Specification ICC-103E-W; fusion-welded alloy steel tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.298-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, 1 expansion dome with manway, and such other external projections as are prescribed herein.

§ 78.298-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the inside surface of the metal jacket shall be given a protective coating.

§ 78.298-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.298-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
L = main inside radius to which head is dished measured on concave side in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	¼	5/16	½	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	½	5/16	5/16
Over 78 to 96 inches	½	⅜	5/16	½	5/16	⅜
Over 96 to 112 inches	½	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	½	½	5/16	⅝	5/16	½

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built of 1 piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at the top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.298-5 *Material.* (a) All plates for tank and expansion dome, must be to an approved specification and be made of metal capable of resisting the action of nitric acid as follows: The maximum corrosion rate in inches penetration per month in the standard 65 percent boiling nitric acid test shall be 0.006" for the straight chromium-bearing stainless steel and 0.0015" for any of the chromium nickel alloys and modified chromium nickel type, this figure to be an average of five 48-hour periods.

(b) All alloy castings and forgings used for fittings or attachments to tank must be to an approved specification and not subject to rapid deterioration by the lading.

§ 78.298-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.298-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with requirements of AAR Welding Code Appendix "W".

§ 78.298-8 *Manway ring, safety valve flange, and sump flange or other attachments.* (a) These attachments must be fusion-welded to tank or dome. Fusion welding for securing these attachments in place must be of the double-welded butt joint type or double full-fillet lap joint type.

§ 78.298-9 *Heat treatment.* (a) All welding of the tank shell and of attachments welded directly thereto must be heat treated as a unit to remove stresses and at the proper temperature to obtain the corrosion resistance specified in § 78.298-5 (a).

§ 78.298-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to the tank is prohibited.

§ 78.298-11 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside dome, of at least 2 percent of the total capacity of the tank and dome combined.

(b) The opening for manway must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, dome pocket drain holes must be provided in the tank shell with nipples extending inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.298-12 *Closures for manway.* (a) The manway cover must be of bolted type, bolted and hinged type, or other approved types, and designed to provide a secure closure of the manway.

(b) Manway ring and cover must be made of the metal prescribed in § 78.298-5 (a) or (b), whichever applies.

(c) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.298-13 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Not specification requirements. When installed these devices must be of an approved design, made of material not subject to rapid deterioration by the lading, and be tightly closed. Protective housing not required, except as prescribed in paragraph (b) of this section. Unloading pipe must be securely anchored within the tank.

(b) When the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices including valves must be of an approved design and be provided with a protective housing. Provision must be made for closing pipe connections of valves.

§ 78.298-14 *Bottom outlets.* (a) Bottom outlet is prohibited, but tank may be equipped with a bottom washout nozzle of metal not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements.

(b) The construction and closure of the bottom washout nozzle must be such that it is liquid tight and should the nozzle be broken, loss of contents will not occur.

(c) The extreme projection of the bottom washout nozzle must be at least 12 inches above the top of rail.

(d) Bottom washout nozzle may be of cast, fabricated, or forged metal and must be of good weldable quality in conjunction with metal of tank.

(e) The closure of the washout nozzle must be equipped with a ¾ inch solid screw plug. Plug must be secured to car structure or washout chamber by at least a ¼ inch chain.

(f) For bottom washout nozzles that project 6 inches or more from shell of tank, a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(g) The flange on the bottom washout nozzle must be of a thickness which will prevent distortion on the inside closure seat or closure casting by any change in contour of the shell, resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the washout nozzle will occur at or below the "V" groove.

(h) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

§ 78.298-15 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design at least 2 inches inside diameter mounted on top of expansion dome. Total valve discharge capacity must be sufficient to prevent building up pressure in tank in excess of 45 pounds per square inch.

(b) One or more safety valves must be provided for each tank or compartment thereof.

(c) The safety valve must be set to open at a pressure of 35 pounds per square inch and be vapor-tight at 28 pounds per square inch. For tolerance see § 78.298-20 (a).

(d) Tanks used for the transportation of corrosive liquids, flammable solids, oxidizing materials, or poisonous liquids or solids, class B, need not be equipped with safety valves, but if not so equipped must have 1 safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement. All tanks equipped with vents must be stenciled "Not for Flammable Liquids".

(e) Safety valve or safety vent flanges must be of cast, forged, or fabricated metal not subject to rapid deterioration by the lading, and be of good weldable quality in conjunction with metal of dome.

§ 78.298-16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by welding. Interior heater systems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of the contents of the tank.

§ 78.298-17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges must be of cast, forged or fabricated material complying with the requirements of § 78.298-5 (a) or (b), whichever applies.

§ 78.298-18 *Closures for openings.* (a) All plugs must be solid, made of materials not subject to rapid deterioration by the lading, with standard pipe thread, and must be of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.298-19 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All closures, except safety valves or vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.298-7 (a).

(d) Tests of interior heater systems. Before interior heater systems are placed in service they must be tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.298-20 *Tests of safety valves.* (a) Valve must be tested before being put into service, by attaching an air line and applying pressure. The valve must open at the pressure prescribed in § 78.298-15 (c) with a tolerance of plus or minus 3 pounds.

§ 78.298-21 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-103E-W and specification number of material used in tank shell and expansion dome in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC-103E-W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least

2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(6) Date on which interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only," or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.298-22 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

43. Add § 78.299 (15 F. R. 8523, Dec. 2, 1950) (49 CFR 78.299, 1950 Rev.) to read as follows:

§ 78.299 *Specification ICC-103A-N-W; fusion welded nickel or nickel alloy tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.299-1 *Type.* (a) Tanks built under this specification must be cylindrical, with heads designed convex outward, and must have at least 1 expansion dome with manway, and such other external projections as are prescribed herein. When the interior of the tank is divided into compartments, each compartment must have 2 heads designed convex outward, 1 expansion dome with manway; and such other external projections as are prescribed herein.

§ 78.299-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and expansion dome must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the inside surface of the metal jacket shall be given a protective coating.

§ 78.299-3 *Bursting pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 240 pounds per square inch.

§ 78.299-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula but in no case shall the wall thickness be less than that specified in paragraph (b) of this section:

$$t=\frac{Pd}{2SE}$$

where

t=thickness in inches of thinnest plate;
P=calculated bursting pressure pounds per square inch;
d=inside diameter in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of longitudinal welded joint=90 percent.

(1) The thickness of a dished head must be determined by the following formula, but in no case be less than that specified in paragraph (b) of this section:

$$t=\frac{5PL}{6SE}$$

where

t=thickness of plate in inches;
P=calculated bursting pressure pounds per square inch;
L=main inside radius to which head is dished measured on concave side in inches;
S=minimum ultimate tensile strength in pounds per square inch;
E=efficiency of welded joint.

When head is formed from one piece, the efficiency may be considered as 100 percent.

(b) The minimum thickness of plates must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	Tank heads	Expansion dome heads	Interior compartment heads
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
60 inches or under	7/16	1/4	5/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	1/2	5/16	5/16
Over 78 to 96 inches	1/2	3/8	5/16	1/2	5/16	3/8
Over 96 to 112 inches	1/2	7/16	5/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	5/8	5/16	1/2

(c) The minimum width of bottom sheet of tank must be 60 inches, measured on the arc, but in all cases the width must be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the cradle.

(d) For tanks built of 1 piece cylindrical sections, the thickness specified for bottom sheet must apply to the entire cylindrical shell.

(e) When tank is divided into compartments the interior heads must comply with the requirements for interior compartment heads prescribed herein. When capacity of tank is reduced by moving in the exterior head a new exterior head of approved contour not less than ⅜ inch thickness must be applied. When the capacity is reduced by the insertion of a new interior head this head must comply with the requirements for interior compartment heads and the exterior head reapplied. Voids, created by the addition of heads for division into compartments or reduction in capacity, must be provided with a tapped drain hole at their lowest point, and a tapped hole at top of tank. The top hole must be closed, and the bottom hole may be closed, with not less than ¾ inch nor more than 1½ inch solid pipe plugs having standard pipe threads.

§ 78.299-5 *Material.* (a) All plates for tank and expansion dome must be made of nickel or nickel alloy to an approved specification.

(b) All castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) All external projections must be made of materials specified herein.

§ 78.299-6 *Tank heads.* (a) Tank heads must be of approved contour and must be designed for pressure on concave side and to main inside radius not exceeding 10 feet. The inside knuckle radius must not be less than 3¾ inches except for interior heads of compartment tanks the knuckle radius must not be less than 1½ inches.

§ 78.299-7 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with requirements of AAR Welding Code Appendix "W".

§ 78.299-8 *Manway rings, safety vent flange, and bottom washout nozzle flange or other attachments.* (a) These attachments must be fusion-welded. Fusion-welding for securing these attachments in place must be of the double-welded butt joint type or double-full-fillet-lap joint type.

§ 78.299-9 *Stress relieving or heat treatment.* (a) Not a specification requirement.

§ 78.299-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to tank is prohibited.

§ 78.299–11 *Expansion dome.* (a) The expansion dome must have a capacity measured from the inside top of shell of tank to the inside top of dome or bottom of any vent pipe projecting inside of dome, of at least 1 percent of the total capacity of the tank and dome combined.

(b) The opening for manway must be at least 16 inches in diameter. The opening in the tank shell within the dome must be at least 29 inches in diameter. When the opening in the tank shell exceeds 30 inches in diameter, the opening must be reinforced in an approved manner. When the opening in the tank shell is less than the inside diameter of the dome, dome pocket drain holes must be provided in the tank shell with nipples extending inside the tank at least 1 inch.

(c) The dome head must be of approved contour and must be designed for pressure on concave side.

§ 78.299–12 *Closures for manway.* (a) The manway cover must be of bolted type, bolted and hinged type, or other approved types, and designed to provide a secure closure of the manway.

(b) Manway covers must be made of cast, forged or fabricated nickel or nickel alloy. Manway rings must be made of cast, forged or fabricated nickel or nickel alloy and be of good weldable quality in conjunction with the metal of the dome.

(c) Chains, if used to attach manway covers to outside of dome head, must be at least ⅜ inch or its equivalent.

(d) All joints between manway covers and their seats must be made tight against leakage of vapor and liquid by use of gaskets of suitable material.

§ 78.299–13 *Gauging, venting, loading and unloading, and air inlet devices extending through domes of tanks.* (a) Not specification requirements. When installed these devices must be of an approved design, made of material not subject to rapid deterioration by the lading, and be tightly closed. Protective housing is not required, except as prescribed in paragraph (b) of this section. Unloading pipe must be securely anchored within the tank.

(b) When the characteristics of the commodity for which the car is authorized are such that these devices must be equipped with valves to provide for the loading and unloading of the contents, these devices including valves must be of an approved design and be provided with a protective housing. Provision must be made for closing pipe connections of valves.

§ 78.299–14 *Bottom outlets.* (a) Bottom outlet is prohibited, but tank may be equipped with a bottom washout nozzle of metal not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements.

(b) The construction and closure of the bottom washout nozzle must be such that it is liquid tight and should the nozzle be broken, loss of contents will not occur.

(c) The extreme projection of the bottom washout nozzle must be at least 12 inches above the top of rail.

(d) Bottom washout nozzle may be of cast, fabricated, or forged metal and must be of good weldable quality in conjunction with metal of tank.

(e) The closure of the washout nozzle must be equipped with a ¾ inch solid screw plug. Plug must be secured to car structure or washout chamber by at least a ¼ inch chain.

(f) For bottom washout nozzles that project 6 inches or more from shell of tank, a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(g) The flange on the bottom washout nozzle must be of a thickness which will prevent distortion of the inside closure seat or closure casting by any change in contour of the shell, resulting from expansion of lading, or other causes, and which will insure that accidental breakage of the washout nozzle will occur at or below the "V" groove.

(h) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

§ 78.299–15 *Safety vents.* (a) Safety valves are prohibited, but a safety vent must be applied.

(b) Each tank or compartment thereof must be equipped with 1 safety vent at least 1¾ inches inside diameter closed with a frangible disc of lead or other suitable material of a thickness that will rupture at not more than 45 pounds per square inch. Means for holding disc in place must be such as to prevent distortion or damage to disc when applied. Safety vent closure must be chained or otherwise fastened to prevent misplacement.

(c) Safety vent flanges, if welded to dome, must be of cast, forged, or fabricated metal and be of good weldable quality in conjunction with metal of dome.

§ 78.299–16 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) All attachments to tank and dome must be applied by approved means. Interior heater ssytems, when installed, must be so constructed that the breaking off of their external connections will not cause leakage of contents of tank.

§ 78.299–17 *Interior heater systems.* (a) See §§ 78.260 and 78.261, heater systems.

(b) Interior heater systems and plug flanges, if welded to tank or dome must be of cast, forged or fabricated metal and be of good weldable quality in conjunction with metal of tank or dome.

§ 78.299–18 *Closures for openings.* (a) All plugs must be solid, of good grade cast nickel or equivalent, with standard pipe threads of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads, must have the letter "S" at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

§ 78.299–19 *Tests of tanks.* (a) Each tank must be tested, before being put into service, by completely filling the tank and dome with water, or other liquid having similar viscosity, of a temperature which must not exceed 100 degrees Fahrenheit during the test, and applying a pressure of 60 pounds per square inch. Tank must hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All closures, except safety valves or vents, must be in place while test is made.

(b) If tanks are to be lagged, the test of tank must be made before lagging is applied.

(c) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joint must be made as prescribed in § 78.299–7 (a).

(d) Tests of interior heater systems. Before interior heater systems are placed in service they must tested with hydrostatic pressure and must be tight at 200 pounds per square inch.

§ 78.299–20 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC–103A–N–W and specification number of material used in tank shell and expansion dome in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC–103A–N–W must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank, or jacket if lagged.

(5) Date on which the interior heater systems were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the tank or jacket if lagged.

(6) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that com-

modity followed by the word "only" or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.299-21 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs, to, alterations of, or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and car owner.

44. Add § 78.300 (15 F. R. 8523, Dec. 2, 1950) (49 CFR 78.300, 1950 Rev.) to read as follows:

§ 78.300 *Specification ICC-105A300-AL-W; lagged fusion-welded aluminum tanks to be mounted on or forming part of a car.* (a) Wherever the word "approved" is used in this specification, it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.300-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well, and a protective housing on the cover. Other openings in the tank are prohibited.

§ 78.300-2. *Lagging.* (a) The tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.075 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to the exterior of the tank, the lagging over each heater element may be reduced in thickness equivalent to ½ that required for the shell.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.300-3 *Bursting pressure.* (a) The calculated bursting pressure based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 750 pounds per square inch.

§ 78.300-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank must be calculated by the following formula, but in no case shall the wall thickness be less than that specified in § 78.300-4 (c):

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure, pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch as follows:

ASTM B-178 Alloy GR20A = 25,000 p. s. i.
ASTM B-178 Alloy GS11A = 24,000 p. s. i.
ASTM B-178 Alloy GR40A = 30,000 p. s. i.

E = efficiency of longitudinal welded joint = 90 percent.

(b) The thickness of an ellipsoidal head shall be determined by the following formula:

$$t=\frac{Pd}{2SE}$$

where

t = thickness of plate in inches;
P = calculated bursting pressure pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of welded joint to shell = 100 percent.

(c) The minimum thickness of plates and heads must be ¾ inch.

§ 78.300-5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.300-6 *Material.* (a) All plates for tank and manway nozzle must be of an aluminum alloy to an approved specification and be suitable for fusion-welding and not subject to rapid deterioration by the lading.

(b) Aluminum alloy castings used for fittings or attachments to tank must be made of material to an approved specification.

(c) All external projections which may be in contact with the lading must be made of material specified herein.

§ 78.300-7 *Tank heads.* (a) Tank heads must be of approved contour and must be ellipsoidal for pressure on concave side.

(b) Ellipsoidal tank head shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ the major axis.

§ 78.300-8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.300-9 *Stress-relieving.* (a) Not a specification requirement.

§ 78.300-10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to tank is prohibited.

§ 78.300-11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged, pressed or fabricated aluminum alloy at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion-welding for securing this attachment in place must be of the double-welded butt joint type.

(b) Manway cover must be of forged or rolled aluminum alloy at least 2⅝ inches thick, or other approved material at least 2¼ inches thick machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel, or other approved material, must be bolted to manway cover. Housing must be equipped with a suitable metal cover that can be securely closed. Housing cover on tanks used for the transportation of liquefied flammable gases must be provided with an opening equipped with an approved weatherproof covering and having an area at least equal to the total safety valve discharge area. Housing cover must have suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with approved riveted pin, rod with nuts and cotters or rod with suitable washers welded on ends. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.300-12 *Venting, loading and unloading valves, gauging and sampling device and thermometer well.* (a) Venting, loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 300 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved screw plugs chained or otherwise fastened to prevent misplacement.

(b) The interior plugs of the loading and unloading valves, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by lading and must withstand a pressure of 300 pounds per square inch without leakage. Interior pipes of the gauging device and sampling valve, except as prescribed in paragraph (d) of this section, may be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(d) Tanks used for the transportation of liquefied flammable gases must have the interior pipes of the loading and unloading valves, gauging device and sampling valve equipped with excess flow valves of an approved design.

§ 78.300-13 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of metal not subject to rapid deterioration by the lading and mounted on manway cover. The total valve discharge capacity must be sufficient to prevent building up of pressure in tank in excess of 225 pounds per square inch.

(b) The safety valves must be set to open at a pressure of not exceeding 225 pounds per square inch. (For tolerance see § 78.300-17 (a).)

§ 78.300-14 *Fixtures, reinforcements, and attachments not otherwise specified.* (a) Attachments, other than the anchorage, interior pipe bracing and those mounted on the manway nozzle and cover, are prohibited. Heater systems may be applied to exterior of tank by tank bands or other approved method.

§ 78.300-15 *Closures for openings.* (a) Plugs must be of approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.300-16 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before tank lagging is applied, by completely filling the tank and manway nozzle with water or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 300 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress. All closures, except safety valves, must be in place while test is made.

(b) Calking of welded joints to stop leaks developed during the foregoing tests prohibited. Repairs in welded joints must be made as prescribed in § 78.300-8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.300-17 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 225 pounds per square inch and be vapor tight at 180 pounds per square inch, which limiting pressures must not be affected by any auxiliary closure or other combination.

§ 78.300-18 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification. These marks must be as follows:

(1) ICC-105A300AL-W and specification number of material used in tank shell and manway nozzle in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads of the tank by the tank builder. ICC-105A-300AL-W must also be stenciled on the jacket in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph, by the party assembling the completed car. These marks must also be stenciled on the jacket in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, place where test was made, and by whom, stenciled on the jacket.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraph (2) and (3) of this paragraph. This mark must also be stenciled on the jacket immediately below the dome platform and either directly behind or within 3 feet of the right or left side of ladder, or ladders, if there is a ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the jacket, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

§ 78.300-19 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to the car owner, Bureau of Explosives, and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and numbers of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and the car owner.

45. Add § 78.301 (15 F. R. 8523, Dec. 2, 1950) (49 CFR 78.301, 1950 Rev.) to read as follows:

§ 78.301 *Specification ICC-109A300-W; fusion welded steel tanks to be mounted on or forming a part of a car.* (a) Wherever the word "approved" is used in this specification it means approval by the Association of American Railroads Committee on Tank Cars as prescribed in § 78.259 (a), (b), (c) and (d).

§ 78.301-1 *Type.* (a) Tanks built under this specification must be cylindrical with heads designed convex outward. The tank must be provided with a manway nozzle and cover on top of the tank of sufficient diameter to permit access to the interior of the tank, and to provide for the proper mounting of venting, loading, unloading, sampling and safety valves, gauging device, thermometer well and a protective housing on the cover.

§ 78.301-2 *Lagging.* (a) Not a specification requirement. If applied, the tank shell and manway nozzle must be lagged with an approved insulation material of a thickness so that the thermal conductance is not more than 0.225 B. t. u. per square foot, per degree Fahrenheit differential in temperature per hour at 60 degrees. The entire insulation must be covered with a metal jacket not less than ⅛ inch in thickness and efficiently flashed around all openings so as to be weather tight. When heater systems are attached to exterior of tank, the lagging over each heater element may be reduced in thickness.

(b) Before lagging is applied, the tank surface and the inside surface of the metal jacket shall be given a protective coating.

§ 78.301-3 *Bursting-pressure.* (a) The calculated bursting pressure, based on the lowest tensile strength of the plate and the efficiency of the longitudinal welded joint, must be at least 750 pounds per square inch.

§ 78.301-4 *Thickness of plates.* (a) The wall thickness in the cylindrical portion of the tank and tank heads must be calculated by the following formula; but in no case shall the wall thickness be less than that specified in § 78.301-4 (b):

$$t=\frac{Pd}{2SE}$$

where

t = thickness in inches of thinnest plate;
P = calculated bursting pressure in pounds per square inch;
d = inside diameter in inches;
S = minimum ultimate tensile strength in pounds per square inch;
E = efficiency of longitudinal welded joint = 90 percent.

(b) The minimum thickness of plates must be $\frac{11}{16}$ inch.

(c) The minimum thickness of clad plates, where cladding material has physical properties at least equal to that of the base plate prescribed in § 78.301–6 (a), must be as prescribed in paragraph (b) of this section. Where the cladding material does not have physical properties at least equal to that of the base plate prescribed in § 78.301–6 (a), minimum thickness of base plate must be as prescribed in paragraph (b) of this section.

§ 78.301–5 *Manway nozzle opening.* (a) Opening in tank for manway nozzle must be reinforced in an approved manner.

§ 78.301–6 *Material.* (a) All plates for tank and manway nozzle must be made of open hearth boiler-plate flange quality steel to an approved specification, the carbon content of which shall not exceed 0.31 percent. These plates may also be clad with other metals such as nickel.

(b) All castings used for fittings or attachments to tank must be of material to an approved specification. The use of cast iron is prohibited.

(c) All external projections must be made of materials specified herein.

(d) Lining or interior coating is not a specification requirement. If applied, it must be approved as to material.

§ 78.301–7 *Tank heads.* (a) The tank head shape shall be an ellipsoid of revolution in which the major axis shall equal the diameter of the shell and the minor axis shall be ½ the major axis.

§ 78.301–8 *Welding.* (a) All joints must be fusion-welded by a process which investigation and laboratory tests by the Mechanical Division of the Association of American Railroads have proved will produce satisfactory results. Fusion-welding to be performed by fabricators certified by Association of American Railroads as qualified to meet the requirements of this specification. All joints must be fabricated by means of fusion-welding in accordance with the requirements of A. A. R. Welding Code Appendix W.

§ 78.301–9 *Stress-relieving.* (a) All welding of the tank shell and of attachments welded directly thereto must be stress-relieved as a unit.

§ 78.301–10 *Tank mounting.* (a) The manner in which the tank is supported on and securely attached to the car structure must be approved.

(b) The use of rivets as a means of securing anchor to tank is prohibited.

§ 78.301–11 *Manway nozzle, cover and protective housing.* (a) Manway nozzle must be of forged or rolled steel at least 18 inches inside diameter. Manway nozzle must be of approved design and attached to tank by fusion-welding. Fusion-welding for securing this attachment in place must be of the double-welded butt joint type or double full-fillet lap joint type.

(b) Manway cover must be forged or rolled steel at least 2¼ inches thick machined to approved dimensions. Manway cover must be attached to manway nozzle by through or stud bolts not entering tank.

(c) The shearing value of the bolts attaching protective housing to manway cover must not exceed 70 percent of shearing value of bolts attaching manway cover to manway nozzle.

(d) All joints between manway cover and manway nozzle, and between manway cover and valves or other appurtenances mounted thereon, must be made tight against vapor pressure.

(e) Protective housing of cast or fabricated steel must be bolted to manway cover. Housing must be equipped with a a suitable metal cover that can be securely closed. Housing cover must have a suitable stop to prevent cover striking loading or unloading connections and be hinged on one side only with an approved riveted pin or rod with nuts and cotters. Openings in wall of housing must be equipped with screw plugs or other closures.

§ 78.301–12 *Venting, loading and unloading valves, gauging and sampling device, and thermometer well.* (a) Venting loading and unloading valves must be of approved type, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 300 pounds per square inch without leakage. The valves must be directly bolted to seatings on manway cover. Pipe connections of the valves must be closed with approved screw plugs or otherwise fastened to prevent misplacement.

(b) The interior pipes of the loading and unloading valves, sampling valve and gauging device may be equipped with excess flow valves of an approved design.

(c) Gauging device, sampling valve and thermometer well are not specification requirements. When used they must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand a pressure of 300 pounds per square inch without leakage. Interior pipe of thermometer well must be anchored in an approved manner to prevent breakage due to vibration. The thermometer well must be closed by an approved valve attached close to the manway cover and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

§ 78.301–13 *Bottom outlets.* (a) Bottom outlet for discharge of lading is prohibited, but tank may be equipped with a bottom washout of metal not subject to rapid deterioration by the lading, which must be of approved construction complying with the following requirements:

(1) The extreme projection of the bottom washout must be at least 12 inches above the top of rail.

(2) Bottom washout nozzle must be of cast, forged or fabricated metal of good weldable quality in conjunction with the metal of the tank, and must be applied by welding.

(3) The bottom washout must be designed and constructed with a double closure, each capable of withstanding 300 pounds per square inch test pressure and 225 pounds per square inch working pressure without leakage. The inside or top closure must be such that loss of lading will not occur should the nozzle be broken, and preferably should consist of a plug with a tapered seat so that any tank pressure will effect tight closure independent of means of securing the plug. The outside or bottom closure must be a flange with a test plug not larger than ¾ inch pipe plug. Flange and plug must be chained to prevent loss.

(4) For bottom washout nozzles that project 6 inches or more from shell of tank, a "V" groove must be cut (not cast) in the upper part of bottom washout nozzle at a point immediately below lowest part of inside closure seat to a depth that will leave thickness of nozzle wall at the root of the "V" not over ⅜ inch. Where bottom washout nozzle is not a single piece, arrangement must be made to provide the equivalent of the breakage groove.

(5) The opening in the tank bottom for the bottom washout nozzle must be reinforced in an approved manner, and the washout nozzle must be of a thickness to insure that accidental breakage will occur at or below the "V" groove.

(6) The closure casting must not project below the "V" groove in the washout nozzle. The closure casting and seat must be readily accessible for repairs, including grinding.

(7) Joints between closures and their seats may be gasketed with suitable material.

§ 78.301–14 *Safety valves.* (a) The tank must be equipped with one or more safety valves of approved design, made of metal not subject to rapid deterioration by lading and mounted on manway cover. The safety valve must be set to open at a pressure of not exceeding 225 pounds per square inch. (For tolerance see § 78.301–18 (a).)

§ 78.301–15 *Fixtures, reinforcements and attachments not otherwise specified.* (a) All attachments to tank and nozzle must be applied by approved means. Heater systems may be applied to exterior of tank by tank bands or other approved method.

§ 78.301–16 *Closures for openings.* (a) Plugs must be of an approved type, with standard pipe thread, and of metal not subject to rapid deterioration by the lading.

§ 78.301–17 *Tests of tanks.* (a) Each tank must be tested, after anchorage is applied and before tank lagging is applied, by completely filling the tank and manway nozzle with water or other liquid of similar viscosity, having a temperature which must not exceed 100 degrees Fahrenheit during test, and applying a pressure of 300 pounds per square inch. The tank must hold the prescribed pressure for at least 30 minutes without leakage or evidence of distress.

(b) Calking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints must be made as prescribed in § 78.301-8 (a).

(c) Tests of exterior heater systems are not a specification requirement.

§ 78.301-18 *Tests of safety valves.* (a) Each valve must be tested by air or gas before being put into service. The valve must open at a pressure not exceeding 225 pounds per square inch and be vapor tight at 180 pounds per square inch, which limiting pressure must not be affected by an auxiliary closure or other combination.

§ 78.301-19 *Marking.* (a) Each tank must be marked, thus certifying that the tank complies with all the requirements of this specification as follows:

(1) ICC-109A300-W in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal near the center of both outside heads by the tank builder. This mark must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high by the party assembling the completed car.

(2) Initials of tank builder and date of original test of tank in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (1) of this paragraph.

(3) Initials of company and date of additional tests performed by the party assembling the completed car, in those cases where the tank builder does not complete the fabrication of tank, in letters and figures at least ⅜ inch high stamped plainly and permanently into the metal immediately below the stamped marks specified in subparagraph (2) of this paragraph by the party assembling the completed car. These marks must also be stenciled on the tank, or jacket if lagged, in letters and figures at least 2 inches high immediately below the stenciled mark specified in subparagraph (1) of this paragraph by the party assembling the completed car.

(4) Date on which the tank was last tested, pressure to which tested, place where test was made, and by whom stenciled on the tank, or jacket if lagged.

(5) Date on which the safety valves were last tested, pressure to which tested, place where test was made, and by whom, stenciled on the jacket.

(6) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least ⅜ inch high into the metal of the tank immediately below the mark specified in subparagraph (3) of this paragraph. This mark must also be stenciled on the tank, or jacket if lagged, immediately below the dome platform and either directly behind or within 3 feet of the right or left side of the ladder on each side of the tank, in letters and figures at least 2 inches high as follows:

WATER CAPACITY
000000 POUNDS

(7) When a tank car and its appurtenances are designed and authorized for the transportation of a particular commodity only, the name of that commodity followed by the word "only", or such other wording as may be required to indicate the limits of usage of the car, must be stenciled on each side of the tank, or jacket if lagged, in letters at least 1 inch high, immediately above the stenciled mark specified in subparagraph (1) of this paragraph.

(8) Tanks made of clad plates must be stenciled on the tank, or jacket if lagged, "____________ (naming material) clad tank." Lined tanks must be stenciled on the tank, or jacket if lagged, "____________ (naming material) lined tank." These marks must be stenciled in letters at least 2 inches high, immediately above stenciled mark specified in subparagraph (7) of this paragraph.

§ 78.301-20 *Reports.* (a) Before a tank car is placed in service, the party assembling the completed car must furnish to car owner and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification. In case of welded repairs to, alterations of or additions to tanks or equipment from original design and construction, all of which must be approved, there must be furnished to the same parties a report in detail of the welded repairs, alterations or additions made to each tank covered by a particular application, showing the initials and number of each tank involved. Reports of retests must be rendered to the Bureau of Explosives and the car owner.

46. Cancel entire Appendices A, B, C, and D (20 F. R. 8111, 8112, Oct. 28, 1955) (19 F. R. 1286, 1287, Mar. 6, 1954) (17 F. R. 7288, 7289, Aug. 9, 1952) (16 F. R. 5340, 5341, June 6, 1951) (19 F. R. 3265, June 3, 1954) (15 F. R. 8523 to 8543, Dec. 2, 1950) (49 CFR 1950 Rev., 1954 Supp., Part 78 Appendices A, B, C, and D).

[F. R. Doc. 56-4965; Filed, June 25, 1956; 8:49 a. m.]

Subchapter B—Carriers by Motor Vehicles

[Ex Parte No. MC-43]

PART 207—LEASE AND INTERCHANGE OF VEHICLES

LEASE AND INTERCHANGE OF VEHICLES BY MOTOR CARRIERS

At a general session of the Interstate Commerce Commission, held at its office in Washington, D. C., on the 18th day of June A. D. 1956.

It appearing that by orders entered herein on February 2, 1955, November 15, 1955, and January 23, 1956, certain sections, or parts of certain sections of the rules prescribed in the above-entitled proceeding by order of May 8, 1951, as subsequently amended, or the applicability of the rules, or sections thereof, to specified groups of authorized carriers, are to become effective on July 1, 1956;

It further appearing that there is pending before the Congress a Bill, S. 898, to amend the Interstate Commerce Act with respect to the authority of this Commission to regulate the use by motor carriers (under leases, contracts, or other arrangements) of motor vehicles not owned by them, in the furnishing of transportation;

And it further appearing that it would be undesirable to the public interest if the said sections or parts of sections were to become effective while the Congress is considering whether to approve legislation dealing with the subject:

It is ordered, That the effective date of the following provisions of the order entered in this proceeding on May 8, 1951, as subsequently modified, be, and it is hereby, postponed until further order:

(1) The provision of § 207.4 (a) (3) which requires that any contract, lease, or other arrangement for the use of equipment shall specify a period "which shall not be less than 30 days";

(2) That part of § 207.4 (a) (5) reading: "* * * *Provided, however,* That such compensation shall not be computed on the basis of any division or percentage of any applicable rate or rates on any commodity or commodities transported in said vehicle or on a division or percentage of any revenue earned by said vehicle during the period for which the lease is effective."

(3) Section 207.5 (c) which requires that drivers be changed at the point of interchange of vehicles on joint-line movements, only insofar as the same applies to authorized carriers by motor vehicle of passenger automobiles, commercial trucks, buses, and related vehicle traffic, and of perishable commodities in refrigerated equipment;

(4) That portion of § 207.5 (c) (1) immediately following the semicolon therein, relating to drivers of special equipment used to transport articles or commodities, which, because of their size, weight, or shape, require the use of special equipment, and reading "and that, until March 1, 1956, such drivers may make the inspection required by § 207.5 (e) of these rules and regulations on behalf of any carrier party to the through movement"; and

(5) All of the rules insofar as they apply to authorized carriers of household goods as defined by the Commission.

(49 Stat. 546, as amended; 49 U. S. C. 304)

By the Commission.

[SEAL] HAROLD D. MCCOY,
Secretary.

[F. R. Doc. 56-5023; Filed, June 25, 1956; 8:50 a. m.]

PROPOSED RULE MAKING

DEPARTMENT OF THE TREASURY

Internal Revenue Service

[26 CFR (1954) Part 1]

INCOME TAX; TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1953

NOTICE OF PROPOSED RULE MAKING

Notice is hereby given, pursuant to the Administrative Procedure Act, approved June 11, 1946, that the regulations set forth in tentative form below are proposed to be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury or his delegate. Prior to the final adoption of such regulations, consideration will be given to any data, views, or arguments pertaining thereto which are submitted in writing, in duplicate, to the Commissioner of Internal Revenue, Attention: T:P, Washington 25, D. C., within the period of 30 days from the date of publication of this notice in the FEDERAL REGISTER. The proposed regulations are to be issued under the authority contained in sections 111, 115, and 7805 of the Internal Revenue Code of 1954 (68A Stat. 33, 35, and 917; 26 U. S. C. 111, 115, and 7805).

[SEAL] O. GORDON DELK,
Acting Commissioner of Internal Revenue.

The following regulations for taxable years beginning after December 31, 1953, and ending after August 16, 1954, are hereby prescribed under sections 102, 103, 109, 110, 111, 112, 113, 114, 115, 118, 119, 120, and 121 of the Internal Revenue Code of 1954:

Sec.	
1.102	Statutory provisions; gifts and inheritances.
1.102-1	Gifts and inheritances.
1.103	Statutory provisions; interest on certain governmental obligations.
1.103-1	Interest upon State obligations.
1.103-2	Dividends from shares and stock of Federal agencies or instrumentalities.
1.103-3	Interest upon notes secured by mortgages executed to Federal agencies or instrumentalities.
1.103-4	Interest upon United States obligations.
1.103-5	Treasury bond exemption in the case of trusts or partnerships.
1.103-6	Interest upon United States obligations in the case of nonresident and foreign corporations not engaged in business in the United States.
1.109	Statutory provisions; improvements by lessee on lessor's property.
1.109-1	Exclusion from gross income of lessor of real property of value of improvements erected by lessee.
1.110	Statutory provisions; income taxes paid by lessee corporation.
1.110-1	Income taxes paid by lessee corporation.
1.111	Statutory provisions; recovery of bad debts, prior taxes, and delinquent accounts.
1.111-1	Recovery of certain items previously deducted or credited.
1.112	Statutory provisions; certain combat pay of members of the Armed Forces.
1.112-1	Compensation of members of the Armed Forces of the United States for service in a combat zone during an induction period, or for service while hospitalized as a result of such combat zone service.
1.113	Statutory provisions; mustering-out payments for members of the Armed Forces.
1.113-1	Mustering-out payments for members of the Armed Forces.
1.114	Statutory provisions; sports programs conducted for the American National Red Cross.
1.114-1	Proceeds from certain sports programs conducted for the benefit of the American National Red Cross.
1.115	Statutory provisions; income of States, municipalities, etc.
1.115-1	Bridges to be acquired by State or political subdivisions.
1.118	Statutory provisions; contributions to the capital of a corporation.
1.118-1	Contributions to the capital of a corporation.
1.119	Statutory provisions; meals or lodging furnished for the convenience of the employer.
1.119-1	Meals or lodging furnished for the convenience of the employer.
1.120	Statutory provisions; statutory subsistence allowance received by police.
1.120-1	Statutory subsistence allowance received by police.
1.121	Statutory provisions; cross-references to other acts.

§ 1.102 *Statutory provisions; gifts and inheritances.*

SEC. 102. *Gifts and inheritances*—(a) *General rule.* Gross income does not include the value of property acquired by gift, bequest, devise, or inheritance.

(b) *Income.* Subsection (a) shall not exclude from gross income—

(1) The income from any property referred to in subsection (a); or

(2) Where the gift, bequest, devise, or inheritance is of income from property, the amount of such income.

Where, under the terms of the gift, bequest, devise, or inheritance, the payment, crediting, or distribution thereof is to be made at intervals, then, to the extent that it is paid or credited or to be distributed out of income from property, it shall be treated for purposes of paragraph (2) as a gift, bequest, devise, or inheritance of income from property. Any amount included in the gross income of a beneficiary under subchapter J shall be treated for purposes of paragraph (2) as a gift, bequest, devise, or inheritance of income from property.

§ 1.102-1 *Gifts and inheritances*—(a) *General rule.* Property received as a gift, or received under a will or under statutes of descent and distribution, is not includible in gross income, although the income from such property is includible in gross income. An amount of principal paid under a marriage settlement is a gift. However, see section 71 and the regulations thereunder for rules relating to alimony or allowances paid upon divorce or separation. Section 102 does not apply to prizes and awards (see section 74 and § 1.74-1) nor to scholarships and fellowship grants (see section 117 and the regulations thereunder).

(b) *Income from gifts and inheritances.* The income from any property received as a gift, or under a will or statute of descent and distribution shall not be excluded from gross income under paragraph (a) of this section.

(c) *Gifts and inheritances of income.* If the gift, bequest, devise, or inheritance is of income from property, it shall not be excluded from gross income under paragraph (a) of this section. Section 102 provides a special rule for the treatment of certain gifts, bequests, devises, or inheritances which by their terms are to be paid, credited, or distributed at intervals. Except as provided in section 663 (a) (1) and paragraph (d) of this section, to the extent any such gift, bequest, devise, or inheritance is paid, credited, or to be distributed out of income from property, it shall be considered a gift, bequest, devise, or inheritance of income from property. Section 102 provides the same treatment for amounts of income from property which is paid, credited, or to be distributed under a gift or bequest whether the gift or bequest is in terms of a right to payments at intervals (regardless of income) or is in terms of a right to income. To the extent the amounts in either case are paid, credited, or to be distributed at intervals out of income, they are not to be excluded under section 102 from the taxpayer's gross income.

(d) *Effect of subchapter J.* Any amount required to be included in the gross income of a beneficiary under sections 652, 662, or 668 shall be treated for purposes of this section as a gift, bequest, devise, or inheritance of income from property. On the other hand, any amount excluded from the gross income of a beneficiary under section 663 (a) (1) shall be treated for purposes of this section as property acquired by gift, bequest, devise, or inheritance.

(e) *Income taxed to grantor or assignor.* Section 102 is not intended to tax a donee upon the same income which is taxed to the grantor of a trust or assignor of income under section 61 or sections 671 through 677, inclusive.

§ 1.103 *Statutory provisions; interest on certain governmental obligations.*

SEC. 103. *Interest on certain governmental obligations*—(a) *General rule.* Gross income does not include interest on—

(1) The obligations of a State, a Territory, or a possession of the United States, or any political subdivision of any of the foregoing, or of the District of Columbia;

(2) The obligations of the United States; or

(3) The obligations of a corporation organized under Act of Congress, if such corporation is an instrumentality of the United States and if under the respective Acts authorizing the issue of the obligations the interest is wholly exempt from the taxes imposed by this subtitle.

(b) *Exception.* Subsection (a) (2) shall not apply to interest on obligations of the United States issued after September 1, 1917 (other than postal savings certificates of deposit, to the extent they represent deposits made before March 1, 1941), unless under the respective Act authorizing the issuance thereof such interest is wholly exempt from the taxes imposed by this subtitle.

(c) *Cross references.* For provisions relating to the taxable status of—

(1) Bonds and certificates of indebtedness authorized by the First Liberty Bond Act, see sections 1 and 6 of that Act (40 Stat. 35, 36; 31 U. S. C. 746, 755);

(2) Bonds issued to restore or maintain the gold reserve, see section 2 of the Act of March 14, 1900 (31 Stat. 46; 31 U. S. C. 408);

(3) Bonds, notes, certificates of indebtedness, and Treasury bills authorized by the Second Liberty Bond Act, see sections 4, 5 (b) and (d), 7, 18 (b), and 22 (d) of that Act, as amended (40 Stat. 290; 46 Stat. 20, 775; 40 Stat. 291, 1310; 55 Stat. 8; 31 U. S. C. 752a, 754, 747, 753, 757c);

(4) Bonds, notes, and certificates of indebtedness of the United States and bonds of the War Finance Corporation owned by certain nonresidents, see section 3 of the Fourth Liberty Bond Act, as amended (40 Stat. 1311, § 4; 31 U. S. C. 750);

(5) Certificates of indebtedness issued after February 4, 1910, see section 2 of the Act of that date (36 Stat. 192; 31 U. S. C. 769);

(6) Consols of 1930, see section 11 of the Act of that date (36 Stat. 192; 31 U. S. C. 751);

(7) Obligations and evidences of ownership issued by the United States or any of its agencies or instrumentalities on or after March 28, 1942, see section 4 of the Public Debt Act of 1941, as amended (c. 147, 61 Stat. 180; 31 U. S. C. 742a);

(8) Commodity Credit Corporation obligations, see section 5 of the Act of March 8, 1938 (52 Stat. 108; 15 U. S. C. 713a-5);

(9) Debentures issued by Federal Housing Administrator, see sections 204 (d) and 207 (i) of the National Housing Act, as amended (52 Stat. 14, 20; 12 U. S. C. 1710, 1713);

(10) Debentures issued to mortgagees by United States Maritime Commission, see section 1105 (c) of the Merchant Marine Act, 1936, as amended (52 Stat. 972; 46 U. S. C. 1275);

(11) Federal Deposit Insurance Corporation obligations, see section 15 of the Federal Deposit Insurance Act (64 Stat. 890; 12 U. S. C. 1825);

(12) Federal Home Loan Bank obligations, see section 13 of the Federal Home Loan Bank Act, as amended (49 Stat. 295, § 8; 12 U. S. C. 1433);

(13) Federal savings and loan association loans, see section 5 (h) of the Home Owners' Loan Act of 1933, as amended (48 Stat. 133; 12 U. S. C. 1464);

(14) Federal Savings and Loan Insurance Corporation obligations, see section 402 (e) of the National Housing Act (48 Stat. 1257; 12 U. S. C. 1725);

(15) Home Owners' Loan Corporation bonds, see section 4 (c) of the Home Owners' Loan Act of 1933, as amended (48 Stat. 644, c. 168; 12 U. S. C. 1463);

(16) Obligations of Central Bank for Cooperatives, production credit corporations, production credit associations, and banks for cooperatives, see section 63 of the Farm Credit Act of 1933 (48 Stat. 267; 12 U. S. C. 1138c);

(17) Panama Canal bonds, see section 1 of the Act of December 21, 1904 (34 Stat. 5; 31 U. S. C. 743), section 8 of the Act of June 28, 1902 (32 Stat. 484; 31 U. S. C. 744), and section 39 of the Tariff Act of 1909 (36 Stat. 117; 31 U. S. C. 745);

(18) Philippine bonds, etc., issued before the independence of the Philipipnes, see section 9 of the Philippine Independence Act (48 Stat. 463; 48 U. S. C. 1239);

(19) Postal savings bonds, see section 10 of the Act of June 25, 1910 (36 Stat. 817; 39 U. S. C. 760);

(20) Puerto Rican bonds, see section 3 of the Act of March 2, 1917, as amended (50 Stat. 844; 48 U. S. C. 745);

(21) Treasury notes issued to retire national bank notes, see section 18 of the Federal Reserve Act (38 Stat. 268; 12 U. S. C. 447);

(22) United States Housing Authority obligations, see sections 5 (e) and 20 (b) of the United States Housing Act of 1937 (50 Stat. 890, 898; 42 U. S. C. 1405, 1420);

(23) Virgin Islands insular and municipal bonds, see section 1 of the Act of October 27, 1949 (63 Stat. 940; 48 U. S. C. 1403).

§ 1.103.1 *Interest upon obligations of a State, Territory, etc.* Interest upon the obligations of a State, Territory, or a possession of the United States, or any political subdivision thereof, or the District of Columbia is exempt from the income tax. Obligations issued by or on behalf of the State, Territory, or possession of the United States, or a duly organized political subdivision acting by constituted authorities empowered to issue such obligations, are the obligations of a State, Territory, or possession of the United States, or a political subdivision thereof. The term "political subdivision", within the meaning of the exemption, denotes any division of the State, Territory, or possession of the United States which is a municipal corporation, or to which has been delegated the right to exercise part of the sovereign power of the State, Territory, or possession of the United States. As thus defined, a political subdivision of a State, Territory, or possession of the United States may or may not, for the purpose of exemption, include special assessment districts so created, such as road, water, sewer, gas, light, reclamation, drainage, irrigation, levee, school, harbor, port improvement, and similar districts and divisions of a State, Territory, or possession of the United States.

§ 1.103-2 *Dividends from shares and stock of Federal agencies or instrumentalities*—(a) *Issued before March 28, 1942.* (1) Section 26 of the Federal Farm Loan Act of July 17, 1916 (12 U. S. C. 931), provides that Federal land banks and national farm-loan associations, including the capital and reserve or surplus therein and the income derived therefrom, shall be exempt from taxation, except taxes upon real estate. Section 7 of the Federal Reserve Act of December 23, 1913 (12 U. S. C. 531), provides that Federal reserve banks, including the capital stock and surplus therein and the income derived therefrom, shall be exempt from taxation, except taxes upon real estate. Section 13 of the Federal Home Loan Bank Act (12 U. S. C. 1433) provides that the Federal Home Loan Bank including its franchise, its capital, reserves, and surplus, its advances, and its income shall be exempt from all taxation, except taxes upon real estate. Section 5 (h) of the Home Owners' Loan Act of 1933 (12 U. S. C. 1464 (h)) provides that shares of Federal savings and loan associations shall, both as to their value and the income therefrom, be exempt from all taxation (except surtaxes, estate, inheritance, and gift taxes) imposed by the United States. Under the above-mentioned provisions, income consisting of dividends on stock of Federal land banks, national farm-loan associations, Federal home loan banks, and Federal reserve banks is not, in the case of stock issued before March 28, 1942, subject to the income tax; and income consisting of dividends on share accounts of Federal savings and loan associations is not, in the case of shares issued before March 28, 1942, subject to the normal tax on income. For taxability of such income in the case of such stock or shares issued on or after March 28, 1942, see section 6 of the Public Debt Act of 1942 (31 U. S. C. 742a) and paragraph (b) of this section. For the time at which a stock or share is issued within the meaning of this section, see paragraph (b) of this section.

(2) Regardless of the exemption from income tax of dividends paid on the stock of Federal reserve banks, dividends paid by member banks are treated like dividends of ordinary corporations.

(3) Dividends on the stock of the central bank for cooperatives, the production credit corporations, production credit associations, and banks for cooperatives, organized under the provisions of the Farm Credit Act of 1933, constitute income to the recipients, subject to both the normal tax and surtax (see section 63 of the Farm Credit Act of 1933 (12 U. S. C. 1138c)).

(b) *Issued on or after March 28, 1942.* (1) By virtue of the provisions of section 6 of the Public Debt Act of 1942, the tax exemption provisions set forth in paragraph (a) of this section with respect to income consisting of dividends on stock of the Federal land banks, national farm-loan associations, and Federal reserve banks, or on share accounts of Federal savings and loan associations, are not applicable in the case of dividends on such stock or shares issued on or after March 28, 1942.

(2) For the purposes of this section, a stock or share is deemed to be issued at the time and to the extent that payment therefor is made to the agency or instrumentality. The date of issuance of the certificate or other evidence of ownership of such stock or share is not determinative if payment is made at an earlier or later date. Where old stock is retired in exchange for new stock of a different character or preference, the new stock shall be deemed to have been issued at the time of the exchange rather than when the old stock was paid for. These rules may be illustrated by the following examples:

Example (1). A, the owner of an investment share account, consisting of 10 shares, in a Federal savings and loan association, has a single certificate issued before March 28, 1942, evidencing such ownership. In order that A may dispose of half of such shares, the association at his request issues, after March 27, 1942, two 5-share certificates in substitution for the 10-share certificate. The shares evidenced by the two new certificates are deemed to have been issued before March 28, 1942, the shares having been paid for before such date.

Example (2). The X Bank, a member of a Federal reserve bank, owns 50 shares of Federal reserve bank stock, evidenced by a single stock certificate issued before March 28, 1942. On December 31, 1942, the X Bank reduces the amount of its capital stock, as a result of which it is required to reduce the amount of its Federal reserve bank stock to 40 shares. It surrenders the 50-share certificate to the Federal reserve bank and receives a new 40-share certificate. The 40 shares evidenced by such certificate are deemed to have been issued before March 28, 1942. On December 31, 1943, the X Bank increases the amount of its capital stock, as a result of which it is required to purchase 10 additional shares of the Federal reserve bank stock. The Federal reserve bank issues a 10-share certificate evidencing ownership of the new shares. Of the 50 shares then owned by the X Bank, 40 were issued prior to March 28, 1942, and 10 were issued after March 27, 1942.

Example (3). A, the owner of a savings share account in the amount of $100 in a Federal savings and loan association, has a passbook containing a certificate issued prior to March 28, 1942, evidencing such ownership. Subsequent to March 27, 1942, A deposits $10,000 in the account. With respect to the $10,000 deposit, the share is deemed to have been issued after March 27, 1942.

§ 1.103–3 *Interest upon notes secured by mortgages executed to Federal agencies or instrumentalities.* Section 26 of the Federal Farm Loan Act of July 17, 1916 (12 U. S. C. 931), and section 210 of such act, as added by section 2 of the act of March 4, 1923 (12 U. S. C. 1111), provide that first mortgages executed to Federal land banks, joint-stock land banks, or Federal intermediate credit banks, and the income derived therefrom, shall be exempt from taxation. Accordingly, income consisting of interest on promisory notes held by such banks and secured by such first mortgages is not subject to the income tax.

§ 1.103–4 *Interest upon United States obligations*—(a) *Issued before March 1, 1941.* (1) Interest upon obligations of the United States issued on or before September 1, 1917, is exempt from tax. In the case of obligations issued by the United States after September 1, 1917, and in the case of obligations of a corporation organized under Act of Congress, if such corporation is an instrumentality of the United States, the interest is exempt from tax only if and to the extent provided in the acts authorizing the issue thereof, as amended and supplemented.

(2) Interest on Treasury bonds issued before March 1, 1941, is exempt from Federal income taxes except surtaxes imposed upon the income or profits of individuals, associations, or corporations. However, interest on an aggregate of not exceeding $5,000 principal amount of such bonds is also exempt from surtaxes. Interest in excess of the interest on an aggregate of not exceeding $5,000 principal amount of such bonds is subject to surtax and must be included in gross income.

(3) Interest credited to postal savings accounts upon moneys deposited before March 1, 1941, in postal savings banks is wholly exempt from income tax.

(b) *Issued on or after March 1, 1941.* (1) Under the provisions of sections 4 and 5 of the Public Debt Act of 1941, interest upon obligations issued on or after March 1, 1941, by the United States, or any agency or instrumentality thereof, shall not have any exemption, as such, from Federal tax except in respect of any such obligations which the Federal Maritime Board and Administration (formerly United States Maritime Commission) or the Federal Housing Administration has, before March 1, 1941, contracted to issue at a future date. The interest on such obligations so contracted to be issued shall bear such tax-exemption privileges as were at the time of such contract provided in the law authorizing their issuance. For the purposes hereof, under section 4 (a) of the Public Debt Act of 1941, a Territory and a possession of the United States (or any political subdivisions thereof), and the District of Columbia, and any agency or instrumentality of any one or more of the foregoing, shall not be considered as an agency or instrumentality of the United States.

(2) In the case of obligations issued as the result of a refunding operation, as, for example, where a corporation exchanges bonds for previously issued bonds, the refunding obligations are deemed, for the purposes of this section, to have been issued at the time of the exchange rather than at the time the original bonds were issued.

§ 1.103–5 *Treasury bond exemption in the case of trusts or partnerships.* (a) When the income of a trust is taxable to beneficiaries, as in the case of a trust the income of which is to be distributed to the beneficiaries currently, each beneficiary is entitled to exemption as if he owned directly a proportionate part of the Treasury bonds held in trust. When, on the other hand, income is taxable to the trustee, as in the case of a trust the income of which is accumulated for the benefit of unborn or unascertained persons, the trust, as the owner of the bonds held in trust, is entitled to the exemption on account of such ownership. In general, see sections 652 (b) and 662 (b) and the regulations thereunder.

(b) As the income of a partnership is taxable to the individual partners, each partner is entitled to exemption as if he owned directly a proportionate part of the bonds held by the partnership. For rules relating to partially tax-exempt interest see section 702 (a) (7) and the regulations thereunder.

§ 1.103–6 *Interest upon United States obligations in the case of nonresident aliens and foreign corporations, not engaged in business in the United States.* By virtue of section 4 of the Victory Liberty Loan Act of March 3, 1919 (31 U. S. C. 750), amending section 3 of the Fourth Liberty Bond Act of July 9, 1918 (31 U. S. C. 750), the interest received on and after March 3, 1919, on bonds, notes, and certificates of indebtedness of the United States while beneficially owned by a nonresident alien individual, or a foreign corporation, partnership, or association, if such individual, corporation, partnership, or association is not engaged in business in the United States, is exempt from income taxes. Such exemption applies only to such bonds, notes, or certificates as have been issued before March 1, 1941. Interest derived by a nonresident alien individual, or by a foreign corporation, partnership, or association on such bonds, notes, or certificates issued on or after March 1, 1941, is subject to tax as in the case of taxpayers generally as provided in § 1.103–4 (b).

§ 1.109 *Statutory provisions; improvements by lessee on lessor's property.*

Sec. 109. *Improvements by lessee on lessor's property.* Gross income does not include income (other than rent) derived by a lessor of real property on the termination of a lease, representing the value of such property attributable to buildings erected or other improvements made by the lessee.

§ 1.109–1 *Exclusion from gross income of lessor of real property of value of improvements erected by lessee.* (a) Income derived by a lessor of real property upon the termination, through forfeiture or otherwise, of the lease of such property and attributable to buildings erected or other improvements made by the lessee upon the leased property is excluded from gross income. However, where the facts disclose that such buildings or improvements represent in whole or in part a liquidation in kind of lease rentals, the exclusion from gross income shall not apply to the extent that such buildings or improvements represent such liquidation. The exclusion applies only with respect to the income realized by the lessor upon the termination of the lease and has no application to income, if any, in the form of rent, which may be derived by a lessor during the period of the lease and attributable to buildings erected or other improvements made by the lessee. It has no application to income which may be realized by the lessor upon the termination of the lease but not attributable to the value of such buildings or improvements. Neither does it apply to income derived by the lessor subsequent to the termination of the lease incident to the ownership of such buildings or improvements.

(b) The provisions of this section may be illustrated by the following example:

Example. The A Corporation leased in 1945 for a period of 50 years unimproved real property to the B Corporation under a lease providing that the B Corporation erect on the leased premises an office building costing $500,000, in addition to paying the A Corporation a lease rental of $10,000 per annum beginning on the date of completion of the improvements, the sum of $100,000 being placed in escrow for the payment of the rental. The building was completed on January 1, 1950. The lease provided that all improvements made by the lessee on the leased property would become the absolute property of the A Corporation on the termination of the lease by forfeiture or otherwise and that the lessor would become entitled on such termination to the remainder of the sum, if any, remaining in the escrow fund. The B Corporation forfeited its lease on January 1, 1955, when the improvements had a value of $100,000. Under the provisions of section 109, the $100,000 is excluded from gross income. The amount of $50,000 representing the remainder in the escrow fund is forfeited to the A Corporation and is included in the gross income of that taxpayer. As to the basis of the property in the hands of the A Corporation, see § 1.1019–1.

§ 1.110 *Statutory provisions; income taxes paid by lessee corporation.*

Sec. 110. *Income taxes paid by lessee corporation.* If—

(1) A lease was entered into before January 1, 1954,

(2) Both lessee and lessor are corporations, and

(3) Under the lease, the lessee is obligated to pay, or to reimburse the lessor for, any part of the tax imposed by this subtitle on the lessor with respect to the rentals derived by the lessor from the lessee,

then gross income of the lessor does not include such payment or reimbursement, and no deduction for such payment or reimbursement shall be allowed to the lessee. For purposes of the preceding sentence, a lease shall be considered to have been entered into before January 1, 1954, if it is a renewal or continuance of a lease entered into before such date and if such renewal or continuance was made in accordance with an option contained in the lease on December 31, 1953.

§ 1.110-1 *Income taxes paid by lessee corporation.* (a) If a lease was entered into before January 1, 1954, if both lessee and lessor are corporations, and if, under the lease, the lessee is obligated to pay, or to reimburse the lessor for, any portion of the tax imposed by subtitle A upon the lessor with respect to the rentals derived by the lessor from such lease, such payment or reimbursement of tax shall be excluded from gross income of the lessor and no deduction therefor shall be allowed to the lessee. For purposes of this section, a renewal or continuance after December 31, 1953, of a lease entered into before January 1, 1954, shall be considered a lease entered into before January 1, 1954, if such renewal or continuance is made in accordance with an option contained in the original lease on December 31, 1953, or in accordance with an option contained (on December 31, 1953) in an instrument by which the original lease was renewed or continued. Thus, assume that a corporation lessor and a corporation lessee enter into a lease on January 1, 1947. The lease expires on December 31, 1953, but may be renewed for two years at the option of the lessee. On December 31, 1953, the lessee exercises his option, and the parties further agree, in writing, that the terms of the lease may be extended for an additional two years at the lessee's option. On December 31, 1955, the lessee exercises his option. The renewal period covering 1954 and 1955 are controlled by the provisions of section 110. Similarly, section 110 is applicable to the second two-year period to which the lease has been extended. However, section 110 would not be applicable to any further extension of the terms of the lease, since such further extension would not be made pursuant to an option existing on December 31, 1953.

(b) In the case of a lease to which the provisions of section 110 are not applicable, any amounts paid or reimbursed by the lessee corporation with respect to taxes imposed by subtitle A upon the lessor corporation for rentals derived by the lessor corporation under such lease shall be included in the gross income of the lessor corporation and shall, if otherwise allowable, be allowed as a deduction to the lessee corporation.

§ 1.111 *Statutory provisions; recovery of bad debts, prior taxes, and delinquency amounts.*

SEC. 111. *Recovery of bad debts, prior taxes, and delinquency amounts*—(a) *General rule.* Gross income does not include income attributable to the recovery during the taxable year of a bad debt, prior tax, or delinquency amount, to the extent of the amount of the recovery exclusion with respect to such debt, tax, or amount.

(b) *Definitions.* For purposes of subsection (a)—

(1) *Bad debt.* The term "bad debt" means a debt on account of the worthlessness or partial worthlessness of which a deduction was allowed for a prior taxable year.

(2) *Prior tax.* The term "prior tax" means a tax on account of which a deduction or credit was allowed for a prior taxable year.

(3) *Delinquency amount.* The term "delinquency amount" means an amount paid or accrued on account of which a deduction or credit was allowed for a prior taxable year and which is attributable to failure to file return with respect to a tax, or pay a tax, within the time required by the law under which the tax is imposed, or to failure to file return with respect to a tax or pay a tax.

(4) *Recovery exclusion.* The term "recovery exclusion", with respect to a bad debt, prior tax, or delinquency amount, means the amount, determined in accordance with regulations prescribed by the Secretary or his delegate, of the deductions or credits allowed, on account of such bad debt, prior tax, or delinquency amount, which did not result in a reduction of the taxpayer's tax under this subtitle (not including the accumulated earnings tax imposed by section 531 or the tax on personal holding companies imposed by section 541) or corresponding provisions of prior income tax laws (other than subchapter E of chapter 2 of the Internal Revenue Code of 1939, relating to World War II excess profits tax), reduced by the amount excludable in previous taxable years with respect to such debt, tax, or amount under this section.

(c) *Special rules for accumulated earnings tax and for personal holding company tax.* In applying subsections (a) and (b) for the purpose of determining the accumulated earnings tax under section 531 or the tax under section 541 (relating to personal holding companies)—

(1) A recovery exclusion allowed for purposes of this subtitle (other than section 531 or section 541) shall be allowed whether or not the bad debt, prior tax, or delinquency amount resulted in a reduction of the tax under section 531 or the tax under section 541 for the prior taxable year; and

(2) Where a bad debt, prior tax, or delinquency amount was not allowable as a deduction or credit for the prior taxable year for purposes of this subtitle other than of section 531 or section 541 but was allowable for the same taxable year under section 531 or section 541, then a recovery exclusion shall be allowable if such bad debt, prior tax, or delinquency amount did not result in a reduction of the tax under section 531 or the tax under section 541.

§ 1.111-1 *Recovery of certain items previously deducted or credited*—(a) *General.* Section 111 provides that income attributable to the recovery during any taxable year of bad debts, prior taxes, and delinquency amounts shall be excluded from gross income to the extent of the "recovery exclusion" with respect to such items. The rule of exclusion so prescribed by statute applies equally with respect to all other losses, expenditures, and accruals made the basis of deductions from gross income for prior taxable years, including war losses referred to in section 127 of the Internal Revenue Code of 1939, but not including deductions with respect to depreciation, depletion, amortization, or amortizable bond premiums. The term "recovery exclusion" as used in this section means an amount equal to the portion of the bad debts, prior taxes, and delinquency amounts (the items specifically referred to in section 111), and of all other items subject to the rule of exclusion which, when deducted or credited for a prior taxable year, did not result in a reduction of any tax of the taxpayer under subtitle A (other than the accumulated earnings tax imposed by section 531 or the personal holding company tax imposed by section 541) of the Internal Revenue Code or corresponding provisions of prior income tax laws (other than the World War II excess profits tax imposed under subchapter E of chapter 2 of the Internal Revenue Code of 1939).

(1) *Section 111 items.* The term "section 111 items" as used in this section means bad debts, prior taxes, delinquency amounts, and all other items subject to the rule of exclusion, for which a deduction or credit was allowed for a prior taxable year. If a bad debt was previously charged against a reserve by a taxpayer on the reserve method of treating bad debts, it was not deducted, and it is therefore, not considered a section 111 item. Bad debts, prior taxes, and delinquency amounts are defined in section 111 (b) (1), (2), and (3), respectively. An example of a delinquency amount is interest on delinquent taxes. An example of the other items not expressly referred to in section 111 but nevertheless subject to the rule of exclusion is a loss sustained upon the sale of stock and later recovered, in whole or in part, through an action against the party from whom such stock had been purchased.

(2) *Definition of "recovery."* Recoveries result from the receipt of amounts in respect of the previously deducted or credited section 111 items, such as from the collection or sale of a bad debt, refund or credit of taxes paid, or cancellation of taxes accrued. Care should be taken in the case of bad debts which were treated as only partially worthless in prior years to distinguish between the item described in section 111, that is, the part of such debt which was deducted, and the part not previously deducted, which is not a section 111 item and is considered the first part collected. The collection of the part not deducted is not considered a "recovery." Furthermore, the term "recovery" does not include the gain resulting from the receipt of an amount on account of a section 111 item which, together with previous such receipts, exceeds the deduction or credit previously allowed for such item. For instance, a $100 corporate bond purchased for $40 and later deducted as worthless is subsequently collected to the extent of $50. The $10 gain (excess of $50 collection over $40 cost) is not a recovery of a section 111 item. Such gain is in no case excluded from gross income under section 111, regardless of whether the $40 recovery is or is not excluded.

(3) *Treatment of debt deducted in more than one year by reason of partial worthlessness.* In the case of a bad debt deducted in part for two or more prior years, each such deduction of a part of

the debt is considered a separate section 111 item. A recovery with respect to such debt is considered first a recovery of those items (or portions thereof), resulting from such debt, for which there are recovery exclusions. If there are recovery exclusions for two or more items resulting from the same bad debt, such items are considered recovered in the order of the taxable years for which they were deducted, beginning with the latest. The recovery exclusion for any such item is determined by considering the recovery exclusion with respect to the prior year for which such item was deducted as being first used to offset all other applicable recoveries in the year in which the bad debt is recovered.

(4) *Special provisions as to worthless bonds, etc., which are treated as capital losses.* Certain bad debts arising from the worthlessness of securities and certain nonbusiness bad debts are treated as losses from the sale or exchange of capital assets. See sections 165 (g) and 166 (d). The amounts of the deductions allowed for any year under section 1211 on account of such losses for such year are considered to be section 111 items. Any part of such losses which, under section 1211, is a deduction for a subsequent year through the capital loss carryover (any later receipt of an amount with respect to such deducted loss is a recovery) is considered a section 111 item for the year in which such loss was sustained.

(b) *Computation of recovery exclusion*—(1) *Amount of recovery exclusion allowable for year of recovery.* For the year of any recovery, the section 111 items which were deducted or credited for one prior year are considered as a group and the recovery thereon is considered separately from recoveries of any items which were deducted or credited for other years. This recovery is excluded from gross income to the extent of the recovery exclusion with respect to this group of items as (i) determined for the original year for which such items were deducted or credited (see subparagraph (2) of this paragraph) and (ii) reduced by the excludable recoveries in intervening years on account of all section 111 items for such original year. A taxpayer claiming a recovery exclusion shall submit, at the time the exclusion is claimed, the computation of the recovery exclusion claimed for the original year for which the items were deducted or credited, and computations showing the amount recovered in intervening years on account of the section 111 items deducted or credited for the original year.

(2) *Determination of recovery exclusion for original year for which items were deducted or credited.* (i) The recovery exclusion for the taxable year for which section 111 items were deducted or credited (that is, the "original taxable year") is the portion of the aggregate amount of such deductions and credits which could be disallowed without causing an increase in any tax of the taxpayer imposed under subtitle A (other than the accumulated earnings tax imposed by section 531 or the personal holding company tax imposed by section 541) of the Internal Revenue Code or corresponding provisions of prior income tax laws (other than the World War II excess profits tax imposed under subchapter E of chapter 2 of the Internal Revenue Code of 1939). For the purpose of such recovery exclusion, consideration must be given to the effect of net operating loss carryovers and carrybacks or capital loss carryovers.

(ii) This rule shall be applied by determining the recovery exclusion as the aggregate amount of the section 111 items for the original year for which such items were deducted or credited reduced by whichever of the following amounts is the greatest:

(*a*) The difference between (*1*) the taxable income for such original year and (2) the taxable income computed without regard to the section 111 items for such original year.

(*b*) In the case of a taxpayer subject to any income tax in lieu of normal tax or surtax or both (except the alternative tax on capital gains imposed by section 1201, which is disregarded), the difference between (*1*) the income subject to such tax for such original year and (2) the income subject to such tax computed without regard to the section 111 items for such original year.

(Neither the amount determined under (*1*) nor the amount under (2) of (*a*) or (*b*) of this subdivision shall in any case be considered less than zero.) For this determination of the recovery exclusion, the aggregate of the section 111 items must be further decreased by the portion thereof which caused a reduction in tax in preceding or succeeding taxable years through any net operating loss carryovers or carrybacks or capital loss carryovers affected by such items. This decrease is the aggregate of the largest amount determined for each of such preceding and succeeding years under (*a*) and (*b*) of this subdivision, the computation of each carryover or carryback to the preceding or succeeding year being made under (*1*) of (*a*) and (*b*) of this subdivision with regard to the section 111 items for the original year and such computation being made under (2) of (*a*) and (*b*) of this subdivision without regard to such items. For the purpose of the preceding sentence, the computations under both (*1*) and (2) of (*a*) and (*b*) of this subdivision shall be made without regard to any section 111 items for such preceding or succeeding year and the carryovers and carrybacks to such year shall be determined without regard to any section 111 items for years subsequent to the original year.

(iii) The determination of the recovery exclusion for original taxable years subject to the provisions of the Internal Revenue Code of 1939 shall be made under § 39.22 (b) (12)-1 (b) (2) of Regulations 118.

(3) *Example.* The provisions of this paragraph may be illustrated by the following example:

Example. A single individual with no dependents has for his 1954 taxable year the following income and deductions:

	With deduction of section 111 items	Without deduction of section 111 items
Gross income	$25,000	$25,000
Less deductions:		
Depreciation	20,000	20,000
Business bad debts and taxes	6,300	
Personal exemption	600	600
	26,900	20,600
Taxable income or (loss)	(1,900)	4,400
Adjustment under section 172 (d) (4)	600	
Net operating loss	(1,300)	

The full amount of the net operating loss of $1,300 is carried back and allowed as a deduction for 1952. The aggregate of the section 111 items for 1954 is $6,300 (bad debts and taxes). The recovery exclusion on account of section 111 items for 1954 is $600, determined by reducing the $6,300 aggregate of the section 111 items by $5,700, i. e., the sum of (1) the difference between the amount of the taxable income for 1954 computed without regard to the section 111 items ($4,400) and the amount of the taxable income for 1954 (not less than zero) computed by taking such items into account, and (2) the amount of the net operating loss ($1,300) which caused the reduction in tax for 1952 by reason of the carryback provisions. If in 1956 the taxpayer recovers $400 of the bad debts, all of the recovery is excluded from the income by reason of the recovery exclusion of $600 determined for the original year 1954. If in 1957 the taxpayer recovers an additional $300 of the bad debts, only $200 is excluded from gross income. That is, the recovery exclusion of $600 determined for the original year 1954 is reduced by the $400 recovered in 1956, leaving a balance of $200 which is used in 1957. The balance of the amount recovered in 1957, $100 ($300 less $200), is included in gross income for 1957.

(c) *Provisions as to taxes imposed by section 531 (relating to the accumulated earnings tax) and section 541 (relating to the tax on personal holding companies).* A recovery exclusion allowed for purposes of subtitle A (other than section 531 or section 541) of the Internal Revenue Code shall also be allowed for the purpose of determining the accumulated earnings tax under section 531 or the personal holding company tax under section 541 regardless of whether or not the section 111 items on which such recovery exclusion is based resulted in a reduction of the tax under section 531 or section 541 (or corresponding provisions of prior income tax laws) for the prior taxable year. Furthermore, if there is recovery of a section 111 item which was not allowable as a deduction or credit for the prior taxable year for purposes of subtitle A (not including section 531 or section 541) or corresponding provisions of prior income tax laws (other than subchapter E of chapter 2 of the Internal Revenue Code of 1939, relating to World War II excess profits tax), but was allowable for such prior taxable year in determining the tax under section 531 or section 541 (or corresponding provisions of prior income tax laws) then for the purpose of determining the tax under section 531 or section 541 a recovery exclusion shall be allowable with respect to such recovery if the section 111 item did not result in a reduction of the tax under section 531 or section 541 (or corresponding provisions of prior income tax laws).

§ 1.112 *Statutory provisions; certain combat pay of members of the Armed Forces.*

SEC. 112. *Certain combat pay of members of the Armed Forces*—(a) *Enlisted personnel.* Gross income does not include compensation received for active service as a member below the grade of commissioned officer in the Armed Forces of the United States for any month during any part of which such member—

(1) Served in a combat zone during an induction period, or

(2) Was hospitalized as a result of wounds, disease, or injury incurred while serving in a combat zone during an induction period; but this paragraph shall not apply for any month during any part of which there are no combatant activities in any combat zone as determined under subsection (c) (3) of this section.

(b) *Commissioned officers.* Gross income does not include so much of the compensation as does not exceed $200 received for active service as a commissioned officer in the Armed Forces of the United States for any month during any part of which such officer—

(1) Served in a combat zone during an induction period, or

(2) Was hospitalized as a result of wounds, disease, or injury incurred while serving in a combat zone during an induction period; but this paragraph shall not apply for any month during any part of which there are no combatant activities in any combat zone as determined under subsection (c) (3) of this section.

(c) *Definitions.* For purposes of this section—

(1) The term "commissioned officer" does not include a commissioned warrant officer.

(2) The term "combat zone" means any area which the President of the United States by Executive Order designates, for purposes of this section or corresponding provisions of prior income tax laws, as an area in which Armed Forces of the United States are or have (after June 24, 1950) engaged in combat.

(3) Service is performed in a combat zone only if performed on or after the date designated by the President by Executive Order as the date of the commencing of combatant activities in such zone, and on or before the date designated by the President by Executive Order as the date of the termination of combatant activities in such zone; except that June 25, 1950, shall be considered the date of the commencing of combatant activities in the combat zone designated in Executive Order 10195.

(4) The term "compensation" does not include pensions and retirement pay.

(5) The term "induction period" means any period during which, under laws heretofore or hereafter enacted relating to the induction of individuals for training and service in the Armed Forces of the United States, individuals (other than individuals liable for induction by reason of a prior deferment) are liable for induction for such training and service.

§ 1.112-1 *Compensation of members of the Armed Forces of the United States for service in a combat zone during an induction period, or for service while hospitalized as a result of such combat-zone service.*

(a) In addition to the exemptions and credits otherwise applicable, section 112 provides that there shall be excluded from gross income:

(1) Compensation received for active service as a member below the grade of commissioned offcer in the Armed Forces of the United States for any month during any part of which such number (i) served in a combat zone during an induction period, or (ii) was hospitalized at any place as a result of wounds, disease, or injury incurred while so serving provided that during all of such month there are combatant activities in some combat zone.

(2) In the case of compensation received for active service as a commissioned officer in the Armed Forces of the United States for any month during any part of which such officer (i) served in a combat zone during an induction period, or (ii) was hospitalized at any place as a result of wounds, disease, or injury incurred while so serving provided that during all of such month there are combatant activities in some combat zone, so much of such compensation as does not exceed $200.

(b) The exclusions under section 112 and this section are applicable only if active service is performed in a combat zone during an induction period. Compensation is subject to exclusion whether or not it is received outside a combat zone or while the recipient is hopitalized or in a year different from that in which the service was rendered for which the compensation is paid. Service is performed in a combat zone only if it is performed in an area which the President of the United States has designated by Executive order, for the purpose of section 112, as an area in which Armed Forces of the United States are or have engaged in combat, and only if it is performed on or after the date designated by the President by Executive order as the date of the commencing of combatant activities in such zone and on or before the date designated by the President by Executive order as the date of the termination of combatant activities in such zone. Section 112 (c) (3) provides that June 25, 1950, shall be considered the date of commencing of combatant activities in the combat zone designated in Executive Order 10195. In Executive Order 10585 the President designated January 31, 1955, as of midnight thereof, as the date of termination of combatant activities in the combat zone designated in Executive Order 10195. If a member of the Armed Forces serves in a combat zone for any part of a month during an induction period, he is entitled to the exclusion for such month to the same extent as if he has served in such zone, for the entire month. If a member of the Armed Forces is hospitalized for a part of a month as a result of wounds, disease, or injury incurred while serving in such zone during an induction period, he is entitled to the exclusion for the entire month provided there are some combatant activities in any combat zone during all of such month.

(c) If an individual is hospitalized for wound, disease, or injury while serving in a combat zone, the wound, disease, or injury will, unless the contrary clearly appears, be presumed to have been incurred while serving in a combat zone. In certain cases, however, a wound, disease, or injury may have been incurred while serving in a combat zone even though the individual was not hospitalized for it while so serving. And, in exceptional cases, a wound, disease, or injury will not have been incurred while serving in a combat zone even though the individual was hospitalized for it while so serving.

(d) These principles may be illustrated by the following examples (in each case service is performed in a combat zone during an induction period):

Example (1). An individual is hospitalized in a combat zone for a specific disease after having served in such zone for three weeks. The incubation period of such disease is from two to four weeks. Such disease was incurred while serving in the combat zone.

Example (2). The facts are the same as in example (1) except that the incubation period is one year. Such disease was not incurred while serving in the combat zone.

Example (3). A member of the Air Force, stationed outside the combat zone, is shot while participating in an aerial flight over the combat zone, but is not hospitalized until he returns to his home base. Such injury was incurred while serving in a combat zone.

Example (4). An individual is hospitalized for a specific disease three weeks after having departed from a combat zone. The incubation period of such disease is from two to four weeks. Such disease was incurred while serving in a combat zone.

(e) An individual is hospitalized only until such time as his status as a hospital patient ceases by reason of his discharge from the hospital.

(f) The term "induction period" means any period in which individuals are generally subject to induction into the Armed Forces of the United States under the Universal Military Training and Service Act (50 App. U. S. C. 451) or under similar acts hereafter enacted. The term does not apply to any period in which individuals are not generally subject to induction but are subject to induction by reason of a prior deferment.

(g) The term "commissioned officer" does not include a commissioned warrant officer, and, accordingly, a commissioned warrant officer is entitled to the exclusion allowed to enlisted personnel under section 112 (a). The term "compensation", for the purpose of this section, does not include pensions and retirement pay. As to who are members of the Armed Forces of the United States, see section 7701 (a) (15).

(h) These exclusions are applicable without regard to the marital status of the recipient of the compensation, and if a husband and wife both meet the requirements of the statute, then each is entitled to the benefit of an exclusion. In the case of a husband and wife domiciled in a State recognized for Federal income tax purposes as a community property State, any exclusion from gross income under section 112 operates before apportionment of the gross income of the spouses in accordance with community property law. For example, a man and his wife are domiciled in a community property State and he is entitled, as a commissioned officer, to the benefit of the exclusion of $200 for each month under section 112 (b). He receives $1,000 as compensation for active service for three months in a combat zone. Of such amount, $600 is excluded from gross income under section 112 (b) and only $400 is taken into account in determining the gross income of both husband and wife.

(i) A member of the Armed Forces is in active service if he is actually serving in the Armed Forces of the United States. Periods during which a member of the Armed Forces is absent from duty on account of sickness, wounds, leave, internment by the enemy, or other lawful cause are periods of active service. A member of the Armed Forces in active service in a combat zone who there becomes a prisoner of war or missing in action is deemed, for the purpose of section 112 and this section, to continue in active service in the combat zone for the period for which he is entitled to such status for military pay purposes. These exclusions apply to compensation received by a member of the Armed Forces for services rendered while in active service even though payment is received subsequent to discharge or release from active service. Compensation credited to a decedent's account for a period subsequent to the established date of his death and received by his estate will be excluded under section 112 from the gross income of the estate to the same extent that it would have been excluded from the gross income of the decedent if he had lived and received such compensation.

§ 1.113 *Statutory provisions; mustering-out payments for members of the Armed Forces.*

SEC. 113. *Mustering-out payments for members of the Armed Forces.* Gross income does not include amounts received during the taxable year as mustering-out payments with respect to service in the Armed Forces of the United States.

§ 1.113-1 *Mustering-out payments for members of the Armed Forces.* For the purposes of the exclusion from gross income under section 113 of mustering-out payments with respect to service in the Armed Forces, mustering-out payments are payments made to any recipients pursuant to the provisions of the Mustering-out Payment Act of 1944 and the Veterans Readjustment Assistance Act of 1952. (See 38 U. S. C. 691e and 1011-1016.)

§ 1.114 *Statutory provisions; sports programs conducted for the American National Red Cross.*

SEC. 114. *Sports programs conducted for the American National Red Cross*—(a) *General rule.* In the case of a taxpayer which is a corporation primarily engaged in the furnishing of sports programs, gross income does not include amounts received as proceeds from a sports program conducted by the taxpayer if—

(1) The taxpayer agrees in writing with the American National Red Cross to conduct such sports program exclusively for the benefit of the American National Red Cross;

(2) The taxpayer turns over to the American National Red Cross the proceeds from such sports program, minus the expenses paid or incurred by the taxpayer—

(A) Which would not have been so paid or incurred but for such sports program, and

(B) Which would be allowable as a deduction under section 162 (relating to trade or business expenses) but for subsection (b) of this section; and

(3) The facilities used for such program are not regularly used during the taxable year for the conduct of sports programs to which this subsection applies.

For purposes of this subsection, the term "proceeds from such sports program" includes all amounts paid for admission to the sports program, plus all proceeds received by the taxpayer from such program or activities carried on in connection therewith.

(b) *Treatment of expenses.* Expenses described in subsection (a) (2) shall be allowed as a deduction under section 162 only to the extent that such expenses exceed the amount excluded from gross income by subsection (a) of this section.

§ 1.114-1 *Proceeds from certain sports programs conducted for the benefit of the American National Red Cross*—(a) *In general.* Under section 114, a corporation primarily engaged in the furnishing of sports programs may exclude from its gross income amounts received as proceeds from a sports program conducted by such corporation if each of the following requirements is met:

(1) The corporation agrees in writing with the American National Red Cross to conduct such sports program exclusively for the benefit of the American National Red Cross;

(2) The corporation turns over to the American National Red Cross all the proceeds from such sports program, less only the expenses paid or incurred by such corporation which would not have been paid or incurred but for such sports program and which would be allowable as deductions as ordinary and necessary business expenses under section 162 (a) except for the provisions of section 114 (b); and

(3) The facilities of the corporation used in conducting such sports program are not regularly used during the taxable year for the conduct of sports programs to which section 114 (a) applies.

(b) *Certain corporations ineligible.* Section 114 does not apply in the case of a corporation organized or operated primarily to conduct or furnish, or to participate in the conduct or furnishing of, one or more sports programs for the American National Red Cross.

(c) *Proceeds from a sports program.* The proceeds from a sports program conducted for the benefit of the American National Red Cross include all amounts received by the conducting corporation, irrespective of when received, on account of such sports program, which amounts would be includible in the gross income of such conducting corporation, except for the provisions of section 114. Where the activities carried on in connection with the sports program include the sale or rental of radio, television, or movie rights, refreshments, souvenirs, parking facilities, programs, advertising, or other goods and services, whether sold or rented directly or through concessionaires, the amounts received by the conducting corporation from such sports program include all amounts received from such activities, but only where such amounts would not have been received by the conducting corporation but for the presentation of the particular sports program. Where the conducting corporation receives payments for concessions on an annual or seasonal basis, and such payments are not increased because of the particular sports program, such payments are not considered as proceeds from such sports program, and any expenses paid or incurred by the conducting corporation on account of such concession operations may not be taken into account under section 114 (a) (2) in determining the net amount of the proceeds from such sports program which the conducting corporation is required to turn over to the American National Red Cross; nor are the proceeds of a sports program considered to include amounts received by the conducting corporation which do not constitute gross income of such corporation, such as admissions taxes or the breakage on a pari-mutual wagering pool which is required to be paid over to the State.

(d) *Sports programs.* (1) Section 114 applies where the program furnished by the conducting corporation consists of sports events such as baseball, football, basketball, or racing but it does not apply to programs or events such as motion pictures, circuses, or dances which are not ordinarily considered to be competitive sporting events.

(2) A sports program includes all of the events normally making up a full program in the particular sport. A single race of a racing program consisting of more than one race would not constitute a sports program, nor would one baseball or basketball game of a doubleheader program constitute a sports program.

(e) *Treatment of expenses.* Expenses described in section 114 (a) (2) shall be allowable as deductions under section 162 only to the extent that such expenses exceed the amount excluded from gross income under section 114 (a).

§ 1.115 *Statutory provisions; income of States, municipalities, etc.*

SEC. 115. *Income of states, municipalities, etc.*—(a) *General rule.* Gross income does not include—

(1) Income derived from any public utility or the exercise of any essential governmental function and accruing to a State or Territory, or any political subdivision thereof, or the District of Columbia; or

(2) Income accruing to the government of any possession of the United States, or any political subdivision thereof.

(b) *Contracts made before September 8, 1916, relating to public utilities.* Where a State or Territory, or any political subdivision thereof, or the District of Columbia, before September 8, 1916, entered in good faith into a contract with any person, the object and purpose of which was to acquire, construct, operate, or maintain a public utility—

(1) If—

(A) By the terms of such contract the tax imposed by this subtitle is to be paid out of the proceeds from the operation of such public utility before any division of such proceeds between the person and the State, Territory, political subdivision, or the District of Columbia, and

(B) A part of such proceeds for the taxable year would (but for the imposition of the tax imposed by this subtitle) accrue directly to or for the use of such State, Territory, political subdiivsion, or the District of Columbia, then a tax on the taxable income from the operation of such public utility shall be levied, assessed, collected, and paid in the manner and at the rates prescribed in this subtitle, but there shall be refunded to such State, Territory, political subdivision, or the District of Columbia (under regulations prescribed by the Secretary or his delegate) an amount which bears the same relation to the amount of the tax as the amount which (but for the imposition of the tax imposed by this subtitle) would have accrued directly to or for the use of such State, Territory, political subdivision, or the District of Columbia, bears to the amount of the taxable income from the operation of such public utility for such taxable year.

(2) If by the terms of such contract no part of the proceeds from the operation of the public utility for the taxable year would, irrespective of the tax imposed by this subtitle, accrue directly to or for the use of such State, Territory, political subdivision, or the District of Columbia, then the tax on the taxable income of such person from the operation of such public utility shall be levied, assessed, collected, and paid in the manner and at the rates prescribed in this subtitle.

(c) *Contracts made before May 29, 1928, relating to bridge acquisitions.* Where a State or political subdivision thereof, pursuant to a contract entered into before May 29, 1928, to which it is not a party, is to acquire a bridge—

(1) If—

(A) By the terms of such contract the tax imposed by this subtitle is to be paid out of the proceeds from the operation of such bridge before any division of such proceeds, and

(B) A part of such proceeds for the taxable year would (but for the imposition of the tax imposed by this subtitle) accrue directly to or for the use of or would be applied for the benefit of such State or political subdivision,

then a tax on the taxable income from the operation of such bridge shall be levied, assessed, collected, and paid in the manner and at the rates prescribed in this subtitle, but there shall be refunded to such State or political subdivision (under regulations to be prescribed by the Secretary or his delegate) an amount which bears the same relation to the amount of the tax as the amount which (but for the imposition of the tax imposed by this subtitle) would have accrued directly to or for the use of or would be applied for the benefit of such State or political subdivision bears to the amount of the taxable income from the operation of such bridge for such taxable year. No such refund shall be made unless the entire amount of the refund is to be applied in part payment for the acquisition of such bridge.

(2) If by the terms of such contract no part of the proceeds from the operation of the bridge for the taxable year would, irrespective of the tax imposed by this subtitle, accrue directly to or for the use of or be applied for the benefit of such State or political subdivision, then the tax on the taxable income from the operation of such bridge shall be levied, assessed, collected, and paid in the manner and at the rates prescribed in this subtitle.

§ 1.115–1 *Bridges to be acquired by State or political subdivisions.* (a) Any State or political subdivision thereof claiming a refund under the provisions of section 115 (c) of an amount equal to all or a portion of any income tax levied, assessed, collected, and paid, shall file a claim therefor on Form 843 (to which there shall be attached as exhibits the matter hereinafter prescribed) with the district director of internal revenue for the internal revenue district in which the tax was paid, which claim shall be executed on behalf of such State or political subdivision thereof by the treasurer or other fiscal officer thereof and shall contain:

(1) A statement of the name of the taxpayer, of the amount of tax levied, assessed, collected, and paid for the taxable year or period in respect of which the claim is made, and the amount of refund thereby sought;

(2) A full statement of the facts considered by the claimant sufficient to entitle it to receive the refund, including copies of all contracts and other documents bearing on the case, and a statement that the claim is submitted under the provisions of section 115 (c);

(3) A showing which will establish to the satisfaction of the district director that the fiscal officer presenting the claim has authority to receive the amount of the refund on behalf of the State or political subdivision which he assumes to represent and to apply without delay the entire amount of such refund in part payment for the acquisition of such bridge, including copies of the laws, ordinances, or similar enactments considered by the claimant sufficient to establish its authority to receive the refund and so to apply it, together with a statement that such fiscal officer will receive and immediately so apply the entire amount of the refund; and

(4) A statement, verified by a written declaration that it is made under the penalties of perjury, made by or on behalf of the taxpayer that the taxpayer thereby joins with and concurs in the request of the State or political subdivision thereof that a refund of an amount equal to all or a portion of the tax previously paid by such taxpayer be made to such State or political subdivision, that the taxpayer agrees to receive the amount refunded from the State or political subdivision to which it is paid and immediately to apply the entire amount of such refund in part payment for the acquisition of such bridge, and that if for any reason the contract which is the basis of the claim for refund is not fully executed and performed, the taxpayer will repay to the United States upon its demand the entire amount of the refund with interest at 6 percent per annum from the date the refund is made without seeking or claiming the benefit of any statute of limitations which prior thereto may have run against the United States.

(b) No refund shall be made of any amount in excess of the amount of the tax levied, assessed, collected, and paid by the taxpayer for any taxable year or period. A separate claim shall be made in respect of each separate taxable year or period. If by the terms of the contract on which the claim is based two or more States or political subdivisions of a State or States are entitled to acquire the bridge, the claim for refund in respect of each separate taxable year or period must be made jointly by the States or political subdivisions thereof so entitled. The amount refunded under section 115 (c) and this section is not considered an overpayment, within the meaning of section 6611, relating to interest on overpayments, and no interest shall be allowed or paid upon the amount of the refund.

(c) A check or voucher in payment of a claim for refund allowed under section 115 (c) will be drawn in the name of the fiscal officer or officers having authority, as established under paragraph (a) (3) of this section, to receive the same, and will contain an express provision that it is issued for the sole purpose and subject to the conditions prescribed in section 115 (c) and this section.

§ 1.118 *Statutory provisions; contributions to the capital of a corporation.*

Sec. 118. *Contributions to the capital of a corporation*—(a) *General rule.* In the case of a corporation, gross income does not include any contribution to the capital of the taxpayer.

(b) *Cross reference.* For basis of property acquired by a corporation through a contribution to its capital, see section 362.

§ 1.118–1 *Contributions to the capital of a corporation.* In the case of a corporation, section 118 provides an exclusion from gross income with respect to any contribution of money or property to the capital of the taxpayer. Thus, if a corporation requires additional funds for conducting its business and obtains such funds through voluntary pro rata payments by its shareholders, the amounts so received being credited to its surplus account or to a special account, such amounts do not constitute income, although there is no increase in the outstanding shares of stock of the corporation. In such a case the payments are in the nature of assessments upon, and represent an additional price paid for, the shares of stock held by the individual shareholders, and will be treated as an addition to and as a part of the operating capital of the company. Section 118 also applies to contributions to capital made by persons other than shareholders. For example, the exclusion applies to the value of land or other property contributed to a corporation by a governmental unit or by a civic group for the purpose of inducing the corporation to locate its business in a particular community, or for the purpose of enabling the corporation to expand its operating facilities. However, the exclusion does not apply to any money or property transferred to the corporation in consideration for goods or services rendered, or to subsidies paid for the purpose of inducing the taxpayer to limit production. See section 362 for the basis of property acquired by a corporation through a contribution to its capital by its stockholders or by nonstockholders.

§ 1.119 *Statutory provisions; meals or lodging furnished for the convenience of the employer.*

Sec. 119. *Meals or lodging furnished for the convenience of the employer.* There shall be excluded from gross income of an employee the value of any meals or lodging furnished to him by his employer for the convenience of the employer, but only if—

(1) In the case of meals, the meals are furnished on the business premises of the employer, or

(2) In the case of lodging, the employee is required to accept such lodging on the business premises of his employer as a condition of his employment.

In determining whether meals or lodging are furnished for the convenience of the employer, the provisions of an employment contract or of a State statute fixing terms of employment shall not be determinative of whether the meals or lodging are intended as compensation.

§ 1.119-1 *Meals and lodging furnished for the convenience of the employer*—(a) *Meals.* (1) The value of meals furnished to an employee by his employer shall be excluded from the employee's gross income if two tests are met: (i) The meals are furnished on the business premises of the employer, and (ii) the meals are furnished for the convenience of the employer. The exclusion shall apply irrespective of whether under an employment contract or a statute fixing the terms of employment such meals are furnished as compensation.

(2) The question of whether meals are furnished for the convenience of the employer is one of fact to be determined by analysis of all the facts and circumstances in each case. Ordinarily, meals furnished to the employee during the working day will be deemed furnished for the convenience of the employer. Likewise, meals furnished immediately preceding or immediately following working hours of the employee will be deemed to be for the convenience of the employer if the furnishing of such meals serves a business purpose of the employer other than providing additional or indirect compensation to the employee. Meals furnished on nonworking days, or at times when the employee's presence on the employer's business premises does not serve a business purpose of the employer, do not qualify for the exclusion. If the employee is required to occupy living quarters on the business premises of his employer as a condition of his employment (as defined in paragraph (b) of this section), the exclusion applies to the value of any meals furnished to the employee on such premises. There is no requirement that the employee accept such meals as a condition of employment to qualify for the exclusion.

(b) *Lodging.* (1) The value of lodging furnished to an employee by his employer shall be excluded from the employee's gross income if three tests are met: (i) The lodging is furnished on the business premises of the employer, (ii) the lodging is furnished for the convenience of the employer, and (iii) the employee is required to accept such lodging as a condition of his employment. The phrase "required as a condition of his employment" means required in order for the employee to perform properly the duties of his employment. The exclusion shall apply irrespective of whether under an employment contract or a statute fixing the terms of employment such lodging is furnished as compensation.

(c) *Rules.* (1) For purposes of this section, the term "business premises of the employer" generally means the place of employment of the employee. For example, meals and lodging furnished in the employer's home to a domestic servant would constitute meals and lodging furnished on the business premises of the employer. Similarly, meals furnished to cowhands while herding their employer's cattle on leased land would be regarded as furnished on the business premises of the employer.

(2) The exclusion provided by section 119 applies only to meals and lodging furnished in kind, without charge or cost to the employee. If the employee has an option to receive additional compensation in lieu of meals or lodging in kind, or is required to reimburse the employer for meals or lodging furnished in kind, the value of such meals and lodging is not excluded from gross income. However, the mere fact that an employee, at his option, may decline to accept meals and lodging tendered in kind will not of itself require inclusion of the value thereof in gross income. Cash allowances for meals or lodging received by an employee are includible in gross income to the extent that such allowances constitute compensation.

(d) *Examples.* The provisions of section 119 may be illustrated by the following examples:

Example (*1*). A waitress who works from 7 a. m. to 4 p. m. is furnished without charge two meals a workday. In order to insure that the waitress will commence work on time, the employer encourages her to have her breakfast on his business premises before starting work, although she is not required to have her breakfast there. She is required to have her lunch on such premises. The waitress is permitted to exclude the value of these meals from her gross income under paragraph (a) of this section.

Example (*2*). The waitress in example (1) is allowed to have meals on the employer's premises without charge on her days off. The waitress is not permitted to exclude the value of such meals from her gross income.

Example (*3*). A Civil Service employee of a State is employed at an institution and is required by his employer to be available for duty at any time. Accordingly, the employer furnishes the employee with meals and lodging at the institution. Under the applicable State statute, his meals and lodging are regarded as part of the employee's compensation. The employee would nevertheless be entitled to exclude the value of such meals and lodging from his gross income.

Example (*4*). An employee of an institution is given the choice of residing at the institution free of charge, or of residing elsewhere and receiving a cash allowance in addition to his regular salary. If he elects to reside at the institution the value to the employee of the lodging furnished by the employer will be includible in the employee's gross income because his residence at the institution is not required in order for him to perform properly the duties of his employment.

§ 1.120 *Statutory provisions; statutory subsistence allowance received by police.*

SEC. 120. *Statutory subsistence allowance received by police*—(a) *General rule.* Gross income does not include any amount received as a statutory subsistence allowance by an individual who is employed as a police official by a State, a Territory, or a possession of the United States, by any political subdivision of any of the foregoing, or by the District of Columbia.

(b) *Limitations.* (1) Amounts to which subsection (a) applies shall not exceed $5 per day.

(2) If any individual receives a subsistence allowance to which subsection (a) applies, no deduction shall be allowed under any other provision of this chapter for expenses in respect of which he has received such allowance, except to the extent that such expenses exceed the amount excludable under subsection (a) and the excess is otherwise allowable as a deduction under this chapter.

§ 1.120-1 *Statutory subsistence allowance received by police.* (a) Section 120 excludes from the gross income of an individual employed as a police official by a State, Territory, or possession of the United States, by any of their political subdivisions, or by the District of Columbia, any amount received as a statutory subsistence allowance to the extent that such allowance does not exceed $5 per day. For purposes of this section, the term "statutory subsistence allowance" means an established amount, apart from salary or other compensation, which is authorized under the laws of a State, a Territory, or a possession of the United States, by any political subdivision of any of the foregoing, or by the District of Columbia, to be paid to an individual who is employed as a police official of such governmental unit for meals and other incidental expenses in connection with his official duties. A subsistence allowance paid to a police official by any of the foregoing governmental units which is not so provided by statute may not be excluded from gross income under the provisions of section 120. The term "police official" includes an employee of any of the foregoing governmental units who has police duties, such as a sheiff, a detective, a policeman, or a State police trooper, however designated.

(b) The exclusion provided by section 120 is to be computed on a daily basis, that is, for each day for which the statutory allowance is paid. If the statute providing the allowance does not specify the daily amount of such allowance, the allowance shall be converted to a daily basis for the purpose of applying the limitation provided herein. For example, if a State statute provides for a weekly subsistence allowance, the daily amount is to be determined by dividing the weekly amount by the number of days for which the allowance is paid. Thus, if a State trooper receives a weekly statutory subsistence allowance of $40 for 5 days of the week, the daily amount would be $8, that is, $40 divided by 5. However, for purposes of this section, only $5 per day may be excluded, or $25 on a weekly basis.

(c) Expenses in respect of which the allowance under section 120 is paid may not be deducted under any provision of the income tax laws except to the extent that (1) such expenses exceed the amount of the exclusion, and (2) the excess is otherwise allowable as a deduction. For example, if a State statute provides a subsistence allowance of $3 per day and the taxpayer, a State trooper, incurs expeditures of $4.50 for meals while away from home overnight on official police duties only $3 would be excludable under this section. Expenses relating to such exclusion ($3) may not be deducted under any provision of the income tax laws. However, the remaining $1.50 may be an allowable deduction under section 162 as traveling expenses while away from home in the performance of official duties. See § 1.162-2.

§ 1.121 *Statutory provisions; cross references to other acts.*

SEC. 121. *Cross references to other acts*—(a) For exemption of—

(1) Adjustments of indebtedness under wage earners' plans, see section 679 of the Bankruptcy Act (52 Stat. 938; 11 U. S. C. 1079);

(2) Allowances and expenditures to meet losses sustained by persons serving the United States abroad, due to appreciation of foreign currencies, see the Acts of March 6, 1934 (48 Stat. 466; 5 U. S. C. 118c) and April 25, 1938 (52 Stat. 221; 5 U. S. C. 118c-1);

(3) Amounts credited to the Maritime Administration under section 9 (b) (6) of the Merchant Ship Sales Act of 1946, see section 9 (c) (1) of that Act (60 Stat. 48; 50 U. S. C. App. 1742);

(4) Benefits under World War Adjusted Compensation Act, see section 308 of that Act, as amended (43 Stat. 125; 44 Stat. 827, § 3; 38 U. S. C. 618);

(5) Benefits under World War Veterans' Act, 1924, see section 3 of the Act of August 12, 1935 (49 Stat. 609; 38 U. S. C. 454a);

(6) Dividends and interest derived from certain preferred stock by Reconstruction Finance Corporation, see section 304 of the Act of March 9, 1933, as amended (49 Stat. 1185; 12 U. S. C. 51d);

(7) Earnings of ship contractors deposited in special reserve funds, see section 607 (h) of the Merchant Marine Act, 1936, as amended (52 Stat. 961, § 28; 46 U. S. C. 1177);

(8) Income derived from Federal Reserve banks, including capital stock and surplus, see section 7 of the Federal Reserve Act (38 Stat. 258; 12 U. S. C. 531);

(9) Income derived from Ogdensburg bridge across Saint Lawrence River, see section 4 of the Act of June 14, 1933, as amended (54 Stat. 259, § 2);

(10) Income derived from Owensboro bridge across Ohio River and nearby ferries, see section 4 of the Act of August 14, 1937 (50 Stat. 643);

(11) Income derived from Saint Clair River bridge and ferries, see section 4 of the Act of June 25, 1930, as amended (48 Stat. 140, § 1);

(12) Leave compensation payments under section 6 of Armed Forces Leave Act of 1946, see section 7 of that Act (60 Stat. 967; 37 U. S. C. 36);

(13) Mustering-out payments made to or on account of veterans under the Mustering-Out Payment Act of 1944, see section 5 (a) of that Act (58 Stat. 10; 38 U. S. C. 691e);

(14) Railroad retirement annuities and pensions, see section 12 of the Railroad Retirement Act of 1935, as amended (50 Stat. 316; 45 U. S. C. 228*l*);

(15) Railroad unemployment benefits, see section 2 (e) of the Railroad Unemployment Insurance Act, as amended (52 Stat. 1097; 53 Stat. 845, § 9; 45 U. S. C. 352);

(16) Special pensions of persons on Army and Navy medal of honor roll, see section 3 of of the Act of April 27, 1916 (39 Stat. 54; 38 U. S. C. 393);

(17) Gain derived from the sale or other disposition of Treasury Bills, issued after June 17, 1930, under the Second Liberty Bond Act, as amended, see Act of June 17, 1930 (C. 512, 46 Stat. 775; 31 U. S. C. 754).

(b) For extension of military income-tax-exemption benefits to commissioned officers of Public Health Service in certain circumstances, see section 212 of the Public Health Service Act (58 Stat. 689; 42 U. S. C. 213).

[F. R. Doc. 56-5021; Filed, June 25, 1956; 8:50 a. m.]

FEDERAL RESERVE SYSTEM

[12 CFR Part 222]

BANK HOLDING COMPANIES

FORM TO BE USED IN REGISTERING

The Board of Governors of the Federal Reserve System is considering the adoption of a form (Form F. R. Y-5)[1] to be used by a bank holding company in registering with the Board pursuant to the Bank Holding Company Act of 1956 (70 Stat. 133).

The proposed form is designed to provide for the submission by each bank holding company in its registration statement of the information required to be submitted pursuant to section 5 (a) of the Bank Holding Company Act of 1956.

This notice is published pursuant to section 4 of the Administrative Procedure Act and section 2 of the rules of procedure of the Board of Governors of the Federal Reserve System (12 CFR 262.2).

To aid in the consideration of this matter the Board will be glad to receive from interested persons any relevant data, views, or arguments. Although such material may be sent directly to the Board it is preferable that it be sent to the Federal Reserve Bank of the district which will forward it to the Board to be considered. All such material should be submitted in writing to be received not later than July 16, 1956.

BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM,
[SEAL] S. R. CARPENTER,
Secretary.

[F. R. Doc. 56-4998; Filed, June 25, 1956; 8:46 a. m.]

NOTICES

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

IDAHO

NOTICE OF FILING OF PLAT OF SURVEY

JUNE 18, 1956.

Notice is hereby given that the plat of original survey of the following-described lands, accepted December 21, 1955, will be officially filed in the Land Office, Boise, Idaho, effective at 10:00 a. m. on the 35th day after the date of this notice:

BOISE MERIDIAN

T. 43 N., R. 10 E.,
  Sec. 1, Lots 1, 2, 3, 4, SW¼;
  Sec. 2, Lots 1, 2, 3, 4, S½NW¼, S½;
  Secs. 3 to 11, inclusive;
  Sec. 12, Lots 1, 2, 3, 4, W½NW¼, SW¼;
  Sec. 13, Lots 1, 2, 3, 4, SW¼NE¼, W½, W½SE¼, SE¼SE¼;
  Secs. 14 to 36, inclusive.

T. 44 N., R. 10 E.,
  Sec. 7, Lots 1, 2, 3, 4;
  Sec. 18, Lots 1, 2, 3, 4, 5, 6, 7, 8, SE¼SW¼;
  Sec. 19, all;
  Sec. 20, Lots 1, 2, 3, 4, 5, SW¼NE¼, S½NW¼, S½;
  Sec. 21, Lots 1, 2, 3, 4, 5, S½SW¼, SW¼SE¼;
  Sec. 27, Lots 1, 2, 3, 4, W½SW¼;
  Sec. 28, Lot 1, NW¼NE¼, S½NE¼, NW¼, S½;
  Secs. 29 to 33, inclusive;
  Sec. 34, Lots 1, 2, 3, SW¼NE¼, W½, W½SE¼, SE¼SE¼;
  Sec. 35, Lots 1, 2.

The areas described aggregate 28,458.97 acres.

All the lands described are within the exterior boundaries of the St. Joe National Forest. Lands were withdrawn for Coeur d'Alene Forest Reserve by Proclamation of November 6, 1906, name was changed to Coeur d'Alene National Forest July 1, 1908 and later changed to St. Joe National Forest July 1, 1911.

Anyone having a valid settlement or other right to any of these lands initiated prior to the dates of the withdrawals of the lands should assert the same within 3 months from the date on which the plat is officially filed by filing an application under appropriate public land law, setting forth all facts relevant thereto.

All inquiries relating to these lands should be addressed to the Manager, Land Office, P. O. Box 2237, Boise, Idaho.

NOLAN F. KEIL,
Manager, Land Office.

[F. R. Doc. 56-4993; Filed, June 25, 1956; 8:45 a. m.]

ALASKA

NOTICE OF PROPOSED WITHDRAWAL AND RESERVATION OF LANDS

The Department of the Interior, Bureau of Land Management, has filed an application, Serial No. Anchorage 032449, for the withdrawal of the lands described below, from all forms of appropriation under the public land laws including the mining laws but excepting the mineral leasing laws and the Materials Act. The applicant desires the land for public recreational purposes.

For a period of 60 days from the date of publication of this notice, persons having cause may present their objections in writing to the undersigned official of the Bureau of Land Management, Department of the Interior, Box 480, Anchorage, Alaska.

If circumstances warrant it, a public hearing will be held at a convenient time and place, which will be announced.

The determination of the Secretary on the application will be published in the FEDERAL REGISTER. A separate notice will be sent to each interested party of record.

The lands involved in the application are:

Four parcels of unsurveyed land located on the south shore of Chilkoot Lake, the Chilkoot River, and the north shore of Lutak Inlet in approximate latitude 59°40′ N., longitude 136°35′ W. described as follows:

Area 1: Commencing at meander corner No. 1 of U. S. Survey No. 161 called corner

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[1] Filed as part of the original document. Copies available upon request to the Board of Governors of the Federal Reserve System, Washington 25, D. C., or to any Federal Reserve Bank.

No. 1 of Area 1, thence S. 89° 30′ W. for 14 chains to corner No. 2 of Area 1, thence N. 20° W. for 39 chains to corner No. 3, thence N. 70° E. a distance of 6.9 chains to corner No. 4 of Area 1, on the west shore of the Chilkoot River, thence meander in a southeasterly direction along the west shore of the Chilkoot River and Lutak Inlet for approximately 45 chains to meander corner No. 1 of Area 1, the point of beginning, embracing approximately 37 acres.

Area 2: Commencing at meander corner No. 4 of Area 1, extend across Chilkoot River N. 70° E. to the east shore of the Chilkoot River to a point called meander corner No. 1 of Area 2, thence N. 70° E. for 14 chains to corner No. 2 of Area 2, thence S. 20° E. for 14 chains to meander corner No. 3 of Area 2 on the north shore of Lutak Inlet, thence meander in a westerly direction along the north shore of Lutak Inlet to the mouth of the Chilkoot River, thence in a northerly direction along the east shore of the Chilkoot River for approximately 26 chains to meander corner No. 1 of Area 2, the point of beginning, embracing approximately 16 acres.

Area 3: Commencing at corner No. 3 of Area 1, proceed N. 1° 30′ W. for 48.75 chains to corner No. 1 of Area 3 the point of beginning, thence N. 88° W. for 12 chains to corner No. 2 of Area 3, thence N. 0° 30′ W. for 8.75 chains to the south shore of Chilkoot Lake to meander corner No. 3, said point being at approximate latitude 59°20′05″ N., longitude 135°23′45″ W., thence meander in an easterly direction along the south shore of Chilkoot Lake for 12 chains to meander corner No. 4, thence S. 0° 30′ W. a distance of 6.3 chains to corner No. 1 of Area 3, the point of beginning, embracing approximately 9 acres.

Area 4: Commencing at meander corner No. 4 of Area 3, extend across the Chilkoot River N. 0° 30′ E. to the north shore of the Chilkoot River to a point called meander Corner No. 1 of Area 4, thence N. 0° 30′ E. for 16.25 chains to corner No. 2 of Area 4, thence N. 89° W. for 13 chains to the east shore of Chilkoot Lake to corner No. 3 of Area 4, thence meander in a southeasterly direction to meander corner No. 1, the point of beginning, embracing approximately 13 acres.

ROGER R. ROBINSON,
Operations Supervisor.

[F. R. Doc. 56-4994; Filed, June 25, 1956; 8:46 a. m.]

[W-039237]

WYOMING

STOCK DRIVEWAY WITHDRAWAL NO. 128; WYOMING NO. 13, REDUCED

By virtue of the authority contained in in section 10 of the act of December 29, 1916 (49 Stat. 865), as amended by the act of January 29, 1929, (45 Stat. 1144; 43 U. S. C. 300), and in section 7 of the act of June 28, 1934 (48 Stat. 1272), as amended by the act of June 26, 1936, (49 Stat. 1976; 43 U. S. C. 315f) and pursuant to the authority delegated by the Director, Bureau of Land Management, in section 2.5, Order No. 541, dated April 21, 1954 (19 F. R. 2473), it is ordered as follows:

Subject to valid rights and the provisions of existing withdrawals, Departmental Order dated March 18, 1920, establishing Stock Driveway No. 128, Wyoming No. 13, under section 10 of the act of December 29, 1916 (39 Stat. 865, 43 U. S. C. 300) is hereby revoked as far as it affects the following described lands:

SIXTH PRINCIPAL MERIDIAN, WYOMING

T. 46 N., R. 92 W.,
  Sec. 18: Lot 25.
T. 46 N., R. 93 W.,
  Sec. 13: Lot 5.

The area described totals 47.63 acres.

This revocation is made in furtherance of an exchange under section 8 of the act of June 28, 1934 (48 Stat. 1272) as amended by section 3 of the act of June 26, 1936 (49 Stat. 1976; 43 U. S. C. 315g) by which the offered land will benefit a Federal land program. This restoration is therefore not subject to the provisions contained in the act of September 27, 1944 (58 Stat. 747; 43 U. S. C. 279–284) as amended, granting preference rights to veterans of World War II and the Korean Conflict and others.

LOWELL M. PUCKETT,
State Supervisor.

[F. R. Doc. 56-5010; Filed, June 25, 1956; 8:48 a. m.]

[W-034452]

WYOMING

STOCK DRIVEWAY WITHDRAWAL NO. 144; WYOMING NO. 18, REDUCED

By virtue of the authority contained in section 10 of the act of December 29, 1916, (39 Stat. 865), as amended by the act of January 29, 1929, (45 Stat. 1144; 43 U. S. C. 300), and in section 7 of the act of June 28, 1934, (48 Stat. 1272), as amended by the act of June 26, 1936, (49 Stat. 1976; 43 U. S. C. 315f) and pursuant to the authority delegated by the Director, Bureau of Land Management, by section 2.5, Order No. 541, dated April 21, 1954 (19 F. R. 2473), it is ordered as follows:

Subject to valid rights and the provisions of existing withdrawals, Departmental Order dated May 30, 1944, establishing Stock Driveway No. 144, Wyoming No. 18, under section 10 of the Act of December 29, 1916 (39 Stat. 865; 43 U. S. C. 300) is hereby revoked so far as it affects the following described lands:

SIXTH PRINCIPAL MERIDIAN, WYOMING

T. 35 N., R. 80 W.,
  Sec. 32: SW¼NE¼, N½SW¼, NW¼SE¼.

The area described totals 160 acres.

This revocation is made in furtherance of an exchange under section 8 of the act of June 28, 1934 (48 Stat. 1272), as amended by section 3 of the act of June 26, 1936 (49 Stat. 1976; 43 U. S. C. 315g), by which the offered land will benefit a Federal land program. This restoration is, therefore, not subject to the provisions contained in the act of September 27, 1944 (58 Stat. 747; 43 U. S. C. 279–284) as amended, granting preference rights to veterans of World War II and the Korean conflict, and others.

LOWELL M. PUCKETT,
State Supervisor.

[F. R. Doc. 56-5011; Filed, June 25, 1956; 8:48 a. m.]

Office of the Secretary

[70907]

ALASKA

ORDER REVOKING PROCLAMATIONS OF MAY 20, 1943, OF ASSISTANT SECRETARY OF THE INTERIOR, ESTABLISHING RESERVES FOR INHABITANTS OF NATIVE VILLAGES OF SHISHMAREF AND WHITE MOUNTAIN, ALASKA

Whereas by proclamations of May 20, 1943, of the Assistant Secretary of the Interior, certain lands in Alaska were reserved for the exclusive use and occupancy of the native inhabitants of the villages of Shishmaref and White Mountain, Alaska; and

Whereas such proclamations provided, among other things, that they should become effective upon their approval by a majority of the natives residing in the area, voting in the manner prescribed in section 2 of the act of May 1, 1936 (49 Stat. 1250; 48 U. S. C. 358a); and

Whereas the natives of the villages of Shishmaref and White Mountain have rejected the reservations:

Now, therefore, pursuant to the authority contained in the said section 2 of the act of May 1, 1936, the said proclamations of May 20, 1943, are hereby revoked.

WESLEY A. D'EWART,
Assistant Secretary of the Interior.

JUNE 20, 1956.

[F. R. Doc. 56-4995; Filed, June 25, 1956; 8:46 a. m.]

DEPARTMENT OF COMMERCE

Office of the Secretary

E. LORING ROACH

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

Report of Appointment

1. Name of appointee: E. Loring Roach.
2. Employing agency: Department of Commerce, Business and Defense Services Administration.
3. Date of appointment: May 25, 1956.
4. Title of position: Director of the General Components Division.
5. Name of private employer: Standard Pressed Steel Company, Jenkintown, Pennsylvania.

CARLTON HAYWARD,
Director of Personnel.

Statement of Financial Interests

6. Names of any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and any other businesses in which the appointee owns, or within 60 days preceding ap-

pointment has owned, any similar interest.

Standard Pressed Steel Company.
Jenkintown, Pennsylvania.
Bank Deposits.

[SEAL] E. LORING ROACH.

JUNE 8, 1956.

[F. R. Doc. 56-5005; Filed, June 25, 1956; 8:47 a. m.]

LEONARD T. WILLISON

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

Report of Appointment

1. Name of appointee: Leonard T. Willison.

2. Employing agency: Department of Commerce, Business and Defense Services Administration.

3. Date of appointment: May 29, 1956.

4. Title of position: Director, Iron and Steel Division.

5. Name of private employer: Jones & Laughlin Steel Company, Pittsburgh, Pa.

CARLTON HAYWARD,
Director of Personnel.

Statement of Financial Interests

6. Names of any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.

Jones & Laughlin Steel Corporation.
Continental Uranium Syndicate.
Cavendish Uranium Mines Corporation.
Bank Deposits.

[SEAL] LEONARD T. WILLISON.

JUNE 11, 1956.

[F. R. Doc. 56-5006; Filed, June 25, 1956; 8:47 a. m.]

GENERAL SERVICES ADMINISTRATION

[Project 3-DC-01]

FEDERAL OFFICE BUILDINGS

PROSPECTUS FOR PROPOSED BUILDINGS IN SOUTHWEST REDEVELOPMENT AREA OF DISTRICT OF COLUMBIA

EDITORIAL NOTE: This prospectus of proposed Project Number 3-DC-01 is published pursuant to section 412 (f) of the Public Buildings Purchase Contract Act of 1954 as amended by Public Law 150, 84th Congress, which requires publication in the FEDERAL REGISTER, for a period of ten consecutive days from date of submission to the Committees on Public Works of the Senate and House of Representatives.

Project Number 3-DC-01 (Revised)

MARCH 14, 1956.

FORMAL PROSPECTUS FOR PROPOSED BUILDING UNDER TITLE I PUBLIC LAW 519, 83D CONGRESS, 2D SESSION

FEDERAL OFFICE BUILDING, WASHINGTON, D. C.

1. *Brief description of proposed building.* The project contemplates the erection of a group of three Federal Office Buildings on a site to be acquired by the Government facing on the proposed Tenth Street Mall in the southwest redevelopment area of Washington, D. C. Each building will be multistoried. An aggregate of approximately 643,000 square feet of net assignable space will be provided.

2. *Estimated maximum cost and financing.* a. Maximum cost of site and buildings, $25,250,000.

b. Proposed contract term, 30 years.

c. Maximum rate of interest on purchase contract, 4 percent.

3. *Certificates of need.* As the project is intended to provide relocation of numerous Federal agencies now in temporary buildings, no specific allocation of space can be made at this time. Upon completion of the facility, assignment and reassignment will be made in accordance with existing law. Therefore, requirement for Certificate of Need otherwise required by section 411 (e) of the Public Buildings Purchase Contract Act of 1954 was waived in Public Law 150, 84th Congress. Certification is hereby made as to the need for service and garage space.

4. *Non-availability of existing space.* Suitable space owned by the Government is not available; and suitable rental space is not available at a price commensurate with that to be afforded through the contract proposed.

5. *Estimated annual managerial, custodial, heat, and utility costs.* (Services to be supplied by Government), $675,000.

6. *Estimated annual tax liability, upkeep and maintenance.* a. Taxes, post construction (contract period), $321,625.

b. Upkeep and maintenance (to be provided by Government), $96,000.

7. *Current annual housing costs.* Rents and other housing costs currently paid by the Government for agencies to be housed in the building to be erected, $509,000 p. a.

Determination of need. It has been determined that (1) the needs for space for the permanent activities of the Federal Government in this particular area cannot be satisfied by utilization of any existing suitable property now owned by the Government, and (2) the best interests of the United States will be served by taking action hereunder.

Submitted at Washington, D. C., on June 1, 1956.

Approved:

FRANKLIN G. FLOETE,
Administrator of General Services.

8. *Statement of Director, Bureau of the Budget.* Reflected in letter (copy attached).

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON 25, D. C.

JUNE 13, 1956.

Project 3-DC-01 (Revised 3-14-56).
3 Multi-storied Federal Office Buildings.
Southwest Redevelopment Area, Washington, D. C.

MY DEAR MR. FLOETE: Pursuant to section 411 (e) (8) of the Public Buildings Purchase Contract Act of 1954 (Public Law 519), the (Revised March 14, 1956) proposal for a group of three Federal Office Buildings, transmitted with your letter of June 1, 1956, has been examined and in my opinion "is necessary and in conformity with the policy of the President." This approval is given with the following understanding:

1. Revision reflects the application of more definite plans for integration of the facility with the proposed Tenth Street Mall developed subsequent to approval of the project last July. Effective integration requires construction of three building units in lieu of one, as originally proposed. Garage space of 134,250 square feet not contemplated in original project is provided. Number of employees, utilization of space and cost factors are relatively the same.

2. That the stated project cost of $25,250,000 (including $2,500,000 for a site to be acquired) is a maximum figure.

3. That the reported annual operating cost of existing Tempos 4, 5, and T; i. e., $1.00 per square foot, represents minimum maintenance in anticipation of demolition, and that temporary Government buildings actually cost more to maintain than the proposed new buildings.

4. That the proposed buildings will house approximately 10% of Federal employees presently housed in temporary buildings, and that the specific allocation of agencies in the proposed buildings is to be determined later by General Services Administration.

5. That every effort will be made to design and construct space conducive to maximum efficient utilization of both site and buildings and to take advantage of any revision of cost downward which may be found possible as the plans develop and negotiations are advanced.

6. That this approval supersedes Mr. Hughes' letter of July 22, 1955.

You appreciate, of course, that this project will receive a more detailed review as to cost and space utilization prior to the approval of the lease-purchase agreement.

Sincerely yours,

(Signed) PERCIVAL BRUNDAGE,
Director.

HON. FRANKLIN G. FLOETE,
Administrator,
General Services Administration,
Washington 25, D. C.

[F. R. Doc. 56-4860; Filed, June 18, 1956; 11:38 a. m.]

HOUSING AND HOME FINANCE AGENCY

Public Housing Administration

CHARLES M. CORMACK

DELEGATION RELATING TO GALVESTON PROJECTS

The delegation to Charles M. Cormack relating to certain Galveston housing projects, 21 F. R. 4327, is amended to read as follows:

Charles M. Cormack is hereby authorized to exercise all the powers, authorities, duties, and functions of the Commissioner of the Public Housing Administration, an agency of the United States of America, and of the United States of America with respect to the low-rent housing projects of the Housing Authority of the City of Galveston identified as Projects Tex-17-1, Oleander Homes, 17-2, Palm Terrace, 17-3, Magnolia Homes, 17-4, 17-5, 17-6, all of which are known as Cedar Terrace.

The powers delegated herein may not be redelegated. However, they may be exercised by a person designated to serve in an "Acting" capacity during absence from duty of the said Charles M. Cormack, who is authorized to designate any person under his supervision to serve in an "Acting" capacity, for periods not exceeding 30 days, during his absence.

Date approved: June 20, 1956.

CHARLES E. SLUSSER,
Commissioner.

[F. R. Doc. 56-5002; Filed, June 25, 1956; 8:47 a. m.]

VARIOUS OFFICIALS

DELEGATIONS OF FINAL AUTHORITY

Section II, Delegations of Final Authority, is amended as follows:

Effective July 1, 1956 paragraph E13 is amended by deleting from the list of officials designated therein "Assistant Director for Management and Disposition, Washington Field Office" and "Chief of the Disposition Section, Washington Field Office" and by inserting in place thereof "Assistant Director for Management and Disposition, Washington Regional Office (for matters in the areas of jurisdiction of the Fort Worth Regional Office and the Washington Regional Office)" and "Chief of the Disposition Section, Washington Regional Office (for matters in the areas of jurisdiction of the Fort Worth Regional Office and the Washington Regional Office)."

Effective July 1, 1956 paragraph E14, delegating certain powers to the Assistant Director for Management and Disposition, Fort Worth Field Office, is hereby revoked.

Date approved: June 19, 1956.

[SEAL] CHARLES E. SLUSSER,
Commissioner.

[F. R. Doc. 56-4999; Filed, June 25, 1956; 8:46 a. m.]

INTERSTATE COMMERCE COMMISSION

[Rev. S. O. 562, Taylor's I. C. C. Order 64, Amdt. 2]

SACRAMENTO NORTHERN RAILWAY

REROUTING OR DIVERSION OF TRAFFIC

Upon further consideration of Taylor's I. C. C. Order No. 64 and good cause appearing therefor:

It is ordered, That: Taylor's I. C. C. Order No. 64 be, and it is hereby, amended by substituting the following paragraph (g) for paragraph (g) thereof:

(g) Expiration date: This order shall expire at 11:59 p. m., August 31, 1956, unless otherwise modified, changed, suspended or annulled.

It is further ordered, That this amendment shall become effective at 11:59 p. m., June 30, 1956, and that this order shall be served upon the Association of American Railroads, Car Service Division, as agent of all railroads subscribing to the car service and per diem agreement under the terms of that agreement, and by filing it with the Director, Division of the Federal Register.

Issued at Washington, D. C., June 18, 1956.

INTERSTATE COMMERCE
COMMISSION,
CHARLES W. TAYLOR,
Agent.

[F. R. Doc. 56-5000; Filed, June 25, 1956; 8:47 a. m.]

CIVIL AERONAUTICS BOARD

[Docket No. 8061, et al.]

HUGHES TOOL INVESTIGATION CASE

NOTICE OF PREHEATING CONFERENCE

In the matter of an investigation of proposed transactions between Hughes Tool Company and Trans World Airlines, Inc.

Notice is hereby given that a prehearing conference in the above-entitled matter is assigned to be held on July 10, 1956, at 10:00 a. m., e. d. s. t., in Room E-210 Temporary Building No. 5, Sixteenth and Constitution Avenue NW., Washington, D. C., before Examiner Edward T. Stodola.

Dated at Washington, D. C., June 20, 1956.

[SEAL] FRANCIS W. BROWN,
Chief Examiner.

[F. R. Doc. 56-5022; Filed, June 25, 1956; 8:50 a. m.]

SECURITIES AND EXCHANGE COMMISSION

[File No. 24D-1493]

TRIANGLE URANIUM CORP.

ORDER TEMPORARILY SUSPENDING EXEMPTION, STATEMENT OF REASONS THEREFOR, AND NOTICE OF OPPORTUNITY FOR HEARING

JUNE 20, 1956.

I. Triangle Uranium Corporation, a Nevada corporation, having filed with this Commission on November 5, 1954, a notification on Form 1-A relating to a proposed offering of 5,000,000 shares of its common stock, 1 cent par value, at 5 cents per share for an aggregate of $250,000, for the purpose of obtaining an exempton from the registration requirements of the Securities Act of 1933, as amended, pursuant to the provisions of section 3 (b) thereof and Regulation A promulgated thereunder;

II. The Commission having reasonable cause to believe that the terms and conditions of Regulation A have not been complied with and that the notification and offering circular contain untrue statements of material facts and omit to state material facts required to be stated therein or necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, particularly with respect to the following:

1. The commencement of the offering prior to the expiration of the waiting period provided by Rule 218.

2. The failure to file, as required by Rule 221, copies of an advertisement and other sales literature used in connection with said offering.

3. The failure to file reports of sales in accordance with Rule 224.

4. The failure to disclose that Weber Investment Co., the underwriter, and the issuer were under common control and that Weber Investment Co. was therefore an affiliate of the issuer during periods when offers and sales of said securities were being made.

5. The failure to amend the notification and offering circular to disclose that Weber Investment Co., the underwriter, is no longer registered with this Commission as a broker-dealer and has gone out of business.

III. *It is ordered*, Pursuant to Rule 223 (a) of the general rules and regulations under the Securities Act of 1933, as amended, that the exemption under Regulation A be, and hereby is, temporarily suspended.

Notice is hereby given that any person having any interest in the matter may file with the Secretary of the Commission a written request for a hearing; that, within 20 days after receipt of such request, the Commission will, or at any time upon its own motion may, set the matter down for hearing at a place to be designated by the Commission for the purpose of determining whether this order of suspension should be vacated or made permanent, without prejudice, however, to the consideration and presentation of additional matters at the hearing; and that notice of the time and place of said hearing will be promptly given by the Commission.

It is further ordered, That this Order and Notice shall be served upon Triangle Uranium Corporation, 1112 Fremont Avenue, Las Vegas, Nevada, 2460 Kiesel Avenue, Ogden, Utah, and 244 32d Street, Ogden, Utah, personally or by registered mail or by confirmed telegraphic notice, and shall be published in the FEDERAL REGISTER.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
Secretary.

[F. R. Doc. 56-5012; Filed, June 25, 1956; 8:48 a. m.]

[24W-1767]

EASTERN ENGINEERING ASSOCIATES, INC.

ORDER TEMPORARILY SUSPENDING EXEMPTION, STATEMENT OF REASONS THEREFOR, AND NOTICE OF OPPORTUNITY FOR HEARING

JUNE 20, 1956.

I. Eastern Engineering Associates, Inc., with principal offices located at 720 21st Street South, Arlington, Virginia, having filed with the Commission on March 24, 1955 a Notification on Form 1-A and an Offering Circular, and subsequently having filed amendments thereto, relating to a proposed offering of $102,000 principal amount 4% debenture bonds and 12,000 shares of $1.00 par common stock, for the purpose of obtaining an exemption from the registration requirements of the Securities Act of 1933, as amended, pursuant to the provisions of section 3 (b) thereof and Regulation A promulgated thereunder; and

II. The Commission having reasonable cause to believe that the terms and conditions of Regulation A have not been complied with in that the company has failed to file reports of sales on Form 2-A as required by Rule 224 of Regulation A, and has ignored requests by the Commission's staff for such reports.

III. *It is ordered*, Pursuant to Rule 223 (a) of the general rules and regulations under the Securities Act of 1933, as amended, that the exemption under Regulation A be, and it hereby is, temporarily suspended.

Notice is hereby given that any person having any interest in the matter may file with the Secretary of the Commission a written request for hearing; that, within 20 days after receipt of such request, the Commission will, or at any time upon its own motion may, set the matter down for hearing at a place to be designated by the Commission for the purpose of determining whether this order of suspension should be vacated or made permanent, without prejudice, however, to the consideration and presentation of additional matters at the hearing; and that notice of the time and place for said hearing will be promptly given by the Commission.

It is further ordered, That this order and notice shall be served upon Eastern Engineering Associates, Inc. and Mr. Donald R. J. White, 720 21st Street South, Arlington, Virginia, personally or by registered mail or by confirmed telegraphic notice, and shall be published in the FEDERAL REGISTER.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
Secretary.

[F. R. Doc. 56-5013; Filed, June 25, 1956; 8:48 a. m.]

[24W-1713]

ABS TRASH CO., INC.

ORDER TEMPORARILY SUSPENDING EXEMPTION, STATEMENT OF REASONS THEREFOR, AND NOTICE OF OPPORTUNITY FOR HEARING

JUNE 20, 1956.

I. ABS Trash Company, Inc., a Delaware corporation, with principal offices formerly located at 411 11th Street SW., Washington, D. C., having filed with the Commission on October 26, 1954 a Notification on Form 1-A and an Offering Circular, and subsequently having filed amendments thereto, relating to a proposed offering of 3,000,000 shares of 1 cent par 7 percent Preferred Series A Stock at 10 cents per share, for the purpose of obtaining an exemption from the registration requirements of the Securities Act of 1933, as amended, pursuant to the provisions of section 3 (b) thereof and Regulation A promulgated thereunder; and

II. The Commission having reasonable cause to believe that the terms and conditions of Regulation A have not been complied with in that the company failed to file reports of sales on Form 2-A as required by Rule 224 of Regulation A, and has ignored requests by the Commission's staff for such reports.

III. *It is ordered*, Pursuant to Rule 223 (a) of the General Rules and Regulations under the Securities Act of 1933, as amended, that the exemption under Regulation A be, and it hereby is, temporarily suspended.

Notice is hereby given that any person having any interest in the matter may file with the Secretary of the Commission a written request for hearing; that, within 20 days after receipt of such request, the Commission will, or at any time upon its own motion may, set the matter down for hearing at a place to be designated by the Commission for the purpose of determining whether this order of suspension should be vacated or made permanent, without prejudice, however, to the consideration and presentation of additional matters at the hearing; and that notice of the time and place for said hearing will be promptly given by the Commission.

It is further ordered, That this order and notice shall be served upon ARS Trash Company, Inc., Alvin N. Roth, 3103 Walnut Street NE., Washington, D. C., and Aaron Iskovitz, 936 New York Avenue NW., Washington, D. C., personally or by registered mail or by confirmed telegraphic notice and shall be published in the FEDERAL REGISTER.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
Secretary.

[F. R. Doc. 56-5015; Filed, June 25, 1956; 8:49 a. m.]

[File No. 24D-1156]

CAL-MEX OIL CORP.

ORDER TEMPORARILY SUSPENDING EXEMPTION, STATEMENT OF REASONS THEREFOR, AND NOTICE OF OPPORTUNITY FOR HEARING

JUNE 20, 1956.

I. Cal-Mex Oil Corporation, 306 Jackson Street, Taft, California, having filed with the Commission on June 9, 1953, a notification on Form 1-A and an offering circular and having subsequently filed amendments thereto, relating to a proposed public offering of 300,000 shares of its $1 par value common stock, for the purpose of obtaining an exemption from the registration requirements of the Securities Act of 1933, as amended, pursuant to the provisions of section 3 (b) thereof and Regulation A promulgated thereunder; and

II. The Commission having reasonable cause to believe:

1. That the terms and conditions of Regulation A have not been complied with in that: the issuer has failed to file on Form 2-A reports of sales as required by Rule 224 of Regulation A.

2. That the offering circular contains untrue statements of material facts and omits to state material facts necessary in order to make the statements made, in the light of the circumstances under which they are made, not misleading, particularly with respect to:

a. The size of the working interest owned by Cal-Mex Oil Corporation in land situated in Neosho County, Kansas, and

b. The oil reserves under the acreage held under lease by Cal-Mex Oil Corporation; and

3. That the offering, if made or continued, would be made in such a manner as to operate as a fraud or deceit upon the purchaser in that material changes in the condition of the company since June 15, 1953 are not reflected in the material filed by Cal-Mex Oil Corporation under Regulation A, concerning, among others:

a. The identity of the officers and directors of Cal-Mex Oil Corporation,

b. The interests of such officers and directors in Cal-Mex Oil Corporation,

c. The financial condition of Cal-Mex Oil Corporation, and

d. The property interests held by Cal-Mex Oil Corporation.

It is ordered, Pursuant to Rule 223 (a) of the general rules and regulations under the Securities Act of 1933, as amended, that the exemption under Regulation A be, and it hereby is, temporarily suspended.

Notice is hereby given that any person having any interest in the matter may file with the Secretary of the Commission a written request for a hearing; that, within 20 days after receipt of such request, the Commission will, or at any time upon its own motion may, set the matter down for hearing at a place to be designated by the Commission for the purpose of determining whether this order of suspension should be vacated or made permanent, without prejudice, however, to the consideration and presentation of additional matters at the hearing, and that notice of the time and place for said hearing will be promptly given by the Commission.

It is further ordered, That this Order and Notice shall be served upon Cal-Mex Oil Corporation, 306 Jackson Street, Taft, California, Harry A. Benner, 306 Jackson Street, Taft, California, Oscar A. Peters, 122 Camino Uno SW, Rt. 1, Box P66, Albuquerque, New Mexico and James L. Davis, 2913 Niles Street, Bakersfield, California personally or by registered mail or by confirmed telegraphic notice, and shall be published in the FEDERAL REGISTER.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
Secretary.

[F. R. Doc. 56-5014; Filed, June 25, 1956; 8:49 a. m.]